

Aviation News

MCGRAW-HILL PUBLISHING COMPANY, INC.

JANUARY 17, 1944



Completes First Year as WTS Director: *R. McLean Stewart, Executive Director of Training for War Training Service, reports more than 207,000 young men have received pilot training under his administration. He cites a growing belief that colleges will be the backbone of post-war aviation training.*

Navy Planes, Up 280% in '43, to Double in '44

High quality of warcraft, held among best in world, credited as vital factor in victories of fleet aircraft.....Page 16

CAA Air Traffic Unit Maps Post-War Rules

Group outlines regulations for expected large-scale expansion of private flying after return to peace-time operation.....Page 34

WPB Reveals Distribution of Plane Contracts

California heads state list with \$8.7 billion out of total of almost \$45 billion from June, 1940, through October, 1943.....Page 47

Jet Propulsion Opens Wide Post-War Field

Performance of Army's new combat plane gives AAF major advantage in production and training program.....Page 7

ACC Urges Simplification of Air Rules

Chamber asks moderation of law to spur private flying; expresses general accord with Lea Bill objectives.....Page 47

AA Reports on Burma Road, Alaska Air Jobs

Line has grown "to second largest international air transportation company in world" through ATC contract.....Page 36



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THE AVIATION NEWS

Washington Observer

THE ARMY REVEALS—Don't overlook Northrop's new night fighter, the P-61 "Black Widow," amidst the excitement and conjecture surrounding the jet propulsion announcement. There was considerable speculation in aviation circles as to what prompted the Army to make two such important announcements almost simultaneously. There were reasons, of course, and good ones, but these involved are reluctant to discuss the matter. Northrop failed to get the credit it deserved for what those who have seen it declare is a ready-to-fight fighter plane. Watch for it when it goes into combat.

PRE-COMBAT DISCLOSURE—In making public the jet propulsion plane by Bell and the P-61 by Northrop, the Army breaks a strict and long-standing censorship rule—in any meeting about new aircraft until they have been in combat. It should be noted that the official announcement on the jet propulsion plane said directives have been issued for production of a sufficient quantity for training purposes. The Black Widow is unproven as a combat plane.

JET PROPULSION IN THE FUTURE—The jet propulsion announcement is certain to result in some wild fantasies by imaginative writers. As a matter of fact, jet propulsion will become an important special device in the hands of the air force, but conventional engines and propellers will be the majority of this war and in the immediate postwar aviation that follows. It appears likely that first jet propelled planes assigned to duty probably will serve as interceptors, but it should be remembered that most of our fighters are now long-range escorts for bombers rather than interceptors, which are defensive weapons.

STANLEY, CRAGGER, CHIDLAW AND KEPNER—To these four pilots goes the distinction of early flight in the Bell jet propulsion plane. Bell's chief test pilot, was at the controls on the maiden flight of the first experimental aircraft. The next day Brig. Gen. (then Col. Lawrence C. Cragger) flew the craft, thus becoming the first Army officer to fly a jet propelled military aircraft in the United States. Later Brig. Gen. B. W. Chidlaw and Maj. Gen. William E. Kepner took the plane itself.

AIRBORNE MANEUVERS—The highly successful combined maneuvers employing ele-

ments of the Airborne Command and the Troop Carrier command, held near Camp MacCullough in early December, were regarded in Washington as highly significant, although they were not widely publicized. Added to that significance is the second of these combined maneuvers held last weekend, which included the dropping of a



complete airborne division, together with all its equipment, behind "enemy" lines. The troops were supplied relatively by air and more than 16,000 men were involved. Lessons learned from the first operation were emphasized in the second and all will be directed at the enemy in good time.

PARATROOPERS' ROLE—Army officials are giving special attention to the role that paratroop and glider-borne troops will play in the coming invasion, giving emphasis to the Camp MacCullough maneuvers. It was understood that about 15 percent of the glider-borne troops were based in the designated area and that an even larger number of paratroopers reached their maneuver objectives. These results may allay the skepticism which had arisen in some Army circles regarding the employment of this type of troops.

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Initial Success of Jet Propulsion Opens Wide Field in War, Civil Use

High performance of Army's new twin-engine combat plane encourages officials, although much time is required for production and tests; Bell plane similar to A-30 in appearance.

Within a few hours after the joint American-British announcement about the new jet-propulsion aircraft specifications as to what it was and what it could do began to develop and by the end of the week it had reached the definite proportion of what-bangs earlier shaped.

Jet propulsion for aircraft is not new. It has been the subject of intense study for years in Germany, Italy, France, England and the United States, with indifferent success, but with enough to keep going. The Italians lay claim to flying the first one in August, 1940, and it is now revealed that the British flew theirs in May, 1945.

► Major AAF Step—But what makes the American Bell twin-engine plane, first to fly on Oct. 1, 1945, so important is that it is a combat plane—not a laboratory test tube. This gives the Army Air Forces a major step forward in its plans for future production and training, for in one operation it obtained the answers to two serious questions: Is a plane with twin jet-propulsion units practicable and can it function as a military plane? This will be necessary for operations on a large scale, however.

Enough information was given in the official announcement which, with British observations since published, plus guarded comments by persons close to the project, permits a calm appraisal of what the plane is like and what lies ahead for jet-propelled aircraft.

► Principle—The principle of jet propulsion is the same everywhere. Air is taken in from the outside, compressed, heated, expanded and ejected through a nozzle at extremely high velocity—this thrust pushing the airplane forward on the ground and in the air. Jet propulsion is used on conventional aircraft engines

exhaust stacks to squeeze out a little more speed from horsepower that otherwise would go to waste out of the exhaust.

The NACA fitted a standard fighter airplane with special exhaust stacks and increased the top speed of the plane by 16 miles per hour. Persons who have seen the Whittle power plant and have heard the explanation of how it works are amazed at the simplicity of both construction and operation.

► Remarks—Douglas A-30—Although it has been reported from abroad that the Bell jet plane looks like a P-38, people who have seen



Twin Jet Propulsion: Gen. H. H. Chidlow, Chief of the Material Division of the AAF's Office of Air Materiel, Maintenance and Distribution. Gen. Chidlow has been a key figure in directing jet propulsion tests.

it here say it resembles a Douglas A-30 in flight and on the ground. Pilots who have flown it report that it handles like most conventional aircraft, only easier, and they are unanimous in their expression of two sensations: lack of noise usually associated with the cockpit and engines and freedom from vibration.

They also speak of the absence of torque and the smooth acceleration from standstill up to flying speed. It takes off like any other plane—and with a burst. The number of cockpit instruments and accessories also is materially reduced.

► Ideal for Attack—Persons who have seen the Bell plane fly report that it is difficult to describe the sound it makes. First, they emphasize, it does not sound like a conventional airplane because there are no propeller or engine noise. At the plane's approach, there is a dash across the field, it is almost silent, except for the exhaust which thrusts it through the air as it is located in the nose.

There is a mighty blast as it passes overhead and then the noise takes on the sound of a freight train rumbling in the distance.

This describes, it is pointed out,

New Night Fighter

Army combat plane of the Army Air Forces, disclosure of which was somewhat overshadowed by the announcement of the jet-propulsion plane at Northrop. Admiralty P-61 night fighter, the Black Widow.

The plane, powered by two Pratt & Whitney engines, as described as "a beauty" and "a work of art." Details of the performance are still on the secret list, but the craft has a fairly long range and possesses effective speed and climb characteristics.

Specialized design for night flying and heavy armament, the plane is to be used in the south of intensive research and development on the part of technicians of the Army Air Forces and Northrop, designed toward production of a powerful and effective aerial night combat weapon equipped with the latest weapons.

Development started more than three years ago and the contract for the first model was let to Northrop, in January, 1946.



Jet Propulsion Pilot Maiden flight of the first experimental aircraft in the United States on Oct. 1, 1942, marking the first successful operation of a jet-powered plane using the jet-propulsion principle, found Robert M. Stanley, chief test pilot, of Bell Aircraft Co., at the controls on the initial flight.

will not agree with descriptions of the sounds made by the British model, and probably never will as the latter is a single engine job and of different design. On a silent approach qualities alone, the plane is represented as ideal for low-level attack work.

No Supercharging Needed—However, the principle behind the jet-pendulum idea is that the higher the plane goes, the more air there is and, like the gasoline combustion engine, does not need supercharging. Evidently satisfactory speeds in excess of the fastest fighters now in combat anywhere, and at higher altitudes, have been obtained and the ultimate capabilities of the power plant experts to get more and more thrust (they don't talk in terms of horsepower) is at present unknown.

What pleases everyone concerned with the project—particularly Col. Don J. Keens and Col. Ralph P. Swafford, both of Wright Field and project officers respectively on the engine and airframe—is that on the first major attempt the Air Forces to adapt jet propellers to a single-seat fighter, they surprisedly speed the conventional fighters that have been slowly working up the scale since the days of Kitty Hawk.

Advantages—The principal advantages sought for jet propulsions

by its advocates are elimination of weight of engines, propellers and their accessories, and the attendant maintenance problems and engine cooling and high octane gasoline. British reports are that the Whittle engine burns ordinary kerosene, and they state that the fuel consumption is high. Until that is adjusted or improved, the ship may be destined for the role of an interceptor.

With elimination of engines and propellers, the field of design opens anew. One which suggests itself immediately is a shorter landing gear which becomes possible because no longer need be used a propeller-driven plane. Another is an absolutely clean wing and a third, superb mid wings.

The Spad—Emersoned pilots transferring over to the jet-propulsion job, frequently referred to around Air Forces experimental headquarters as "The Spad," have to forget more knowledge of plane operation than they will need to acquire, according to one airmen who has made several flights. His reaction to the entire operation was that he wished he would never have to fly a conventional plane again. He added that perhaps that hope was crystallized for him when one never saw on the tarmac and he never knew about it until after he had made his first dogfight.

While no announcement was made

as to what would build the model successfully, facts here, as was stated, that plans are being made for a production order for training purposes and since Bell has built a number of these already, it doubtless will

continue with the "training order" as being best qualified.

Bell Gets First Order—Bell Aircraft was the first to receive an order to build a plane and make it fly with the General Electric-built Whittle engine, and achieved the distinction of making the first flight of a jet-propulsion airplane in the United States and the first flight in the world of a twin-engine, combat plane using that principle. However, the Army and NACA went ahead with jet-propulsion projects for other types and purposes.

The joint AAF-RAF association was given a dispensation from usual procedure governing announcement of new combat aircraft prior to test flying and enemy capture. Seven and times in the past year the announcement was made ready for publication, but each time was called back at the last moment by objections either from the British or the Army. Those closest to the project who had labored under a shroud of secrecy since September, 1941, took the position that, as the plane approached production, it could no longer be hidden from public knowledge and to open up of P-51's catalog of secrecy and the Army stamp of "Secret" on everything pertaining to it, its phenomenal success in combat, they could not be expected to be held in complete suspense. As the program developed at becoming necessary to let in more and more people and sooner or later the story would break unashamedly and perhaps reveal more necessary secret information than the controlled announcement.



J. P. Project Officer: Col. R. P. Swafford is project officer on the engine and airframe. He is a graduate of the University of Minnesota and West Point and has been on duty at Wright Field on various technical projects.



J. P. Project Engineer: Col. D. J. Keens is project engineer on the jet-propulsion engine of the Bell experimental plane. He brought the original Whittle power plant from England to the U. S. and superintended its subsequent development.

continues with the "training order" as being best qualified.

► German Work on Idea—But the Army also knows that it is ridiculous to believe that the Germans are ahead on this problem, first because characteristically they lean toward developments of this sort and second they have had the advantage of all Italian research up until the collapse of their ally. In the late summer of 1943, when it was thought the story would then be announced, one high Army official said he would not be surprised—either he anticipated or—to receive reports any day

that our B-17s encountered a flight of jet-propelled interceptors fighters during a mission over Germany and for his part he certainly wanted the announcement of the American-British achievement to reach the American people first rather than at a fellow pilot's or German propagandist's new secret weapon. It also is relatively reported here that the Germans have several jet-propulsion types in an experimental stage, but no late information on production status is available.

WEST COAST REPORT

Demand Eases for Women Workers; Employee Efficiency Rising

Los Angeles correspondent cites establishment of more permanent industries on Coast; Goodrich tire spinner debated.

By SCHOLER BANGS

LOS ANGELES—Aircraft factories and airline shops on the Pacific seaboard, frantic bidders for women workers during the man-scarce months of '43, are ease off. Increasing availability of disengaged war veterans is the factor. Airline management clubs have found that, while women qualify fairly for airline routes, operations and management work requiring manual dexterity, they are not so well suited to all-around shop work required of aircraft mechanics. Douglas Aircraft, with a year-end payroll of 180,000 men and women, reports its woman-power strength has dropped from a 50 percent September high to 46 percent currently. Whether the company's ratio of employment of women will swing up as an anticipated post-warmer employment peak of 280,000 is approached will depend largely on losses of men from the armed services.

► LABOR UTILIZATION—West Coast aircraft factories boast that for every 100 workers originally needed to build a Boeing bomber, an interceptor and a medium bomber, by mid-1943 the manpower requirement had been lowered to nine for an attack bomber, five for an interceptor, and two for a medium bomber. Labor utilization seems to be a sterile manner of reckoning a lively, human miracle on production lines. A year ago the assembly line was a writhing, churning thing that forced production upward by the sheer brute strength of men and

women who worked in sweat and conditions. Learning workers were sweating and on top of the feet of those who knew how.

A tour of Coast plants today shows assembly lines that move with easy production, palefaces, lines and groups of workers all busy, their number blending into the machine scene. Men and women swing their tools in easy cadence. No sweat. Few now. They're learned!

► INDUSTRY WESTWARD—In many small ways, the trend toward postwar permanence of western war industries is asserting itself. An example: Bendix Aviation Corp. is making certain that products of its



Watching Northrop's "Black Widow" in Flight: At the AAF's powerful new night fighter's test flight, the performance is closely observed by (left to right) John K. Northrop, president and chief of design of Northrop Aircraft, Inc., builder of the Black Widow; Lt. Gen. William S. Knudsen, director of production for the Army, and LaMotte T. Cohn, general manager of Northrop Aircraft. Details of the plane's performance are restricted.

Pacific division, Bendix Aviation, Ltd., at North Hollywood, Calif., will perform a "Made in the West" identity. All aircraft accessories produced by the North Hollywood plant will be trade-marked as "Made-in-West" products.

► BLACK WIDOW'S SECRET—Northrop Aircraft's nameless "Black Widow" night fighter, P-47, in full production at the company's Hawthorne, Calif., plant, no longer is a secret to more than 200,000 Los Angeles residents.

They saw it in low overhead, lit by the glow from batteries of Army searchlights, a set up in Los Angeles Memorial Coliseum, attended and directed by a coverout panel Jan. 8 and 9.

► RESTRICTED—Other thousands of residents have become familiar with it through test flights at Northrop Airport during the past year.

Currently, however, the War Department will not permit public description of its appearance or design details, allowing only the announcement identifying one of the planes flown over the Coliseum as the P-47.

H. M. Fenwick Joins Curtiss-Wright Corp.

Hugh M. Fenwick, former assistant to the executive vice-president of Consolidated Vultee Aircraft Corp., has joined Curtiss-Wright Corp.

Fenwick, a veteran pilot with service in both the Army and the Navy, recently returned from a five-month tour of air bases in England, North Africa, Sicily and India during which he flew over 33,000 miles.

► Started With Standard Oil—He

started his aviation business career in the Aviation department of Standard Oil of New Jersey and in 1937 joined Aviation Corporation and remained as European representative and engineer until 1943, when he was elected vice-president of the new organization. He represented Avia-

tion Corp. in Europe until October, 1943, when he was elected vice-president of Vultee Aircraft, Inc. When the latter merged with Consolidated in March, 1946, he was appointed assistant to the executive vice-president of the new organization.

Technical Advances in Aviation Discussed at SAE Detroit Meeting

New President William S. James predicts continued use by competing companies of wartime policy of pooling technical knowledge developed through an laboratory research.

By ALEXANDER MCGURELY

Use of rigid lighter-than-air craft Aircraft Corp., Burbank, Calif. Other aviation men taking parts in SAE for 1946, as a result of the mail election announced at the meeting, include: Arthur Nutt, vice-president of Wright Aeronautical Corp., as member executive council; and following SAE vice-president R. D. Kelley, development supervisor, United Air Lines; A. T. Gregory, chief engineer, Ranger Engines; H. Scott, vice-president, Aeromarine; W. E. Puckard, E. C. De Rose, chief engineer, Aircraft division, Willys Overland; A. J. Blackwood, fuel research engineer, Standard Oil; J. R. Soltis, manager, Petroleum Test Laboratory, Sunoco.

Significant, however, was prediction of new SAE President William S. James, chief engineer, Studebaker Corp., that wartime pooling of technical knowledge by competing industries had brought such important gains that it might be expected to continue as a rule never seen before in peace time.

Other Officers—James succeeds Mac Sheet, chief engineer, Vega.

The meeting was marked by presentation of a distinguished service award to the Society by U. S. Army Ordnance Department for the Society's outstanding engineering advisory service and development of post-war machinery for continu-

ation of such services to the Army and Navy. The award was the first of its type by the Ordnance Dept. to any professional organization.

Five-Ton Bomber—Gen. G. M. James, chief of Development and Ordnance Dept., presented award and in a press conference disclosed that the U. S. has produced aerial bombs up to 10,000 pounds but would not say if any have been used in combat. He said use of 15 mm gun on aircraft was a more economical weapon than had been reported in the press. He reduced comment on possibility of will larger guns for planes. In a dinner talk he discussed captured Jap and German tanks, trucks and guns, saying Jap's weapons lack firepower and this disadvantage will prove fatal. German weapons indicate thorough planning, but Allies have the edge now from an engineering standpoint.

The rigid airship should play an important part in long-range cargo hauling after the war, Lt. Col. Condie Neil McCaugh, member of the experimental staff, Naval Air Station, Lakehurst, N. J., told a dinner meeting. He compared the theoretical performance of the Maccaugh with modern engines versus a modern cargo plane, pointing out lower fuel consumption per unit cargo for the Maccaugh. Power required by a plane per ton of cargo may be five times that of an airship, or for extreme range of 5,000 miles it may be seven times. A newly designed cargo airship would give far better performance than the Maccaugh, which was built more than 19 years ago as a military experiment.

He suggested possibility of improving airship performance by using a pusher propeller at the stern.

Automobiles—L. W. Kempf, Alcoa, Cleveland, predicted aluminum would be available in secondary grade at around five cents a pound after the war, enabling automobile makers to benefit from the light weight of little premium over present production cost. He said magnesium would continue to be used principally by aircraft industry because of its strength.

F. Flory, Aerated Motors Corp., appeared for careful engineering using low-cost materials, for post-war light plane engine design, to attain quality at low cost.

Air-Cooled Engines—Chester Stiebel, Detroit editor of Aviation and Flying, discussed future of air cooled engines as automobile power plants, and rated their use in tanks, in the German Volkswagens, and other surface vehicles. Flory also referred to this, showing a proposed design of an aircooled engine auto.

Gertrude Sprewell, engineer for Ranger Engines, pointed out that synthetic rubber was replacing natural rubber in many uses in aircraft engine manufacture and was proving more satisfactory, in parts coming in contact with steel, cast-iron, etc., and outlined research problems dealing with synthetics for engines.

Safety Record—Stephen H. Rollis of CAA, presenting a summary of aircraft engine failures from January 1941 to July 1943 in U. S. civil aviation, said airlines flew 340,000,000 miles with only seven forced landings, resulting from engine failure, resulting in three planes damaged, safely.

D. P. Bernard and R. F. Marchant of Standard Oil of Indiana, and 100 octane gasoline for automobiles was far in the future because of the waste of crude oil which would remain under present methods. They said there may be 80 octane for autos by 1950.



NEW EXPOSURE SUIT:

A Royal Canadian aviator, about wearing a new exposure suit, is shown. The suit is made of two layers of cotton of exposure suits tested in water at 60 degrees temperature, with air temperatures about 25 degrees. These waterproof overalls would be donned by crewmen before abandoning plane forced down at sea. They would wear a gaff of sheet from insulation, keeping the man warm for hours.

If possible, provision should be made for future expansion and proper sites should be selected for buildings. If local plans are too ambitious, communities will be afraid of the expense and do nothing.

Faith in Community—Col. Johnstone asserted that securing the land involves no risk: "If you believe in the future of your community, it should appear to you as a sound investment. If local aviation plans do not pan out, the land can be sold without loss and possibly at a profit. But if you get the land, you are likely to find that aviation can develop as a local business."

"Opportunities will develop for charter services and feeder and pickup routes. Thus, the field will be linked with nearby airline terminals for mail, express, freight and passenger traffic and will play its part in the development of the big four phases of aviation as a business."

Useful Material—After the fact was many a town spent more for a monument of stone or bronze than a



PATCHED UP "MITCHELL" FLIES ON:

An AAF photographer caught this North American B-25 of the 12th Air Force near Yugoslavia. Note blank

patches over holes made by flak in recent raids, especially along trailing edge of right wing and on fuselage.

Community Airport Planning Urged

Col. Johnstone, CAP commander, calls municipalities not to waste big fields.

Every community in America should be acquiring land and drafting zoning and airport plans for future expansion of the field. Lt. Col. Earle L. Johnstone, AAF, national commander of the Civil Air Patrol, told the annual New England Aviation Conference at Boston last week.

He pointed that communities should be dedicated as memorials to the men and women serving overseas.

Airports Key to Growth—"We can advance into the air age," he said,

"only if we build an adequate system of airports. The airport is the foundation for all aviation."

"While the present shortages of materials and labor will prevent much actual construction during the European phase of the war, every community can get the land and start its desired plan now."

Don't Wait—"Don't wait until you can prepare for a big airport with paved runways and approach buildings and hangars. Plan for a little airport now. A field of 150 to 200 acres will do. Find the best available site as close as possible to town and obtain a suitable bond. Then fly in as soon as you have graded and filled the ground, without waiting for other improvements."

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good sleepers would have cost. Build a memorial airport instead, and you will have it ever on guard for service.

Stewart Calls for Full Use Of Pilot Training Facilities

Cuts plan for continued use of independent flying schools during and after the war; reports WTS trained more than 207,000 service pilots in 1943.

Even after the Armistice, national security will demand that flying training be provided for young people to maintain an emergency pilot nucleus. No one will suggest reliance on veterans of World War II for another fighting air force.

Army Air Forces with its string of training schools across the country has no doubt that it can supply them.

If the act now enacts some form of compulsory military training for personnel, the AAF (and Navy) may control all flying schools, from primary to final stages.

Enlistment. If the services, however, are dependent on enlisting, it may be necessary to rely heavily on civil schools for primary aviation training.

K. McLean Stewart, completing his first year as executive director of training for War Training Service, told the Association of American Colleges at Cincinnati last week that facilities to handle 300,000 young men to learn to fly every year would represent a reasonable training plant.

Cuts. **Need of Pilots** — "We will need them, and we are to retain those of the act," he said. "We will need them for civil aviation. We will need them as a reserve. We can leave aviation to the unaided resources of private individuals. It seems to me that to some extent at least the government must help in the development of postwar civilian pilot training."

Stewart called for adoption of a policy utilizing certified employees of the nation's colleges and local flight operators for the remainder of the war. He cited a "large and growing body of opinion that the colleges will constitute the backbone of our postwar system of aviation training."

Training Scholarships — A program might include awarding of flight training scholarships to qualified college students, with 40 to 60 hours of flight instruction in primary

WTS Schools Hit

Use of the national system of independent, privately owned flight schools will decline steadily in the next few months, with the War Training Service, according to its founding law, June 30, unless the Civilian Pilot Training Act of 1943 is extended promptly by Congress.

Army courses at 87 flight schools are in process of termination while about 80 other flight schools are still in operation. Many contracts will not be renewed. Air crew centers at 102 other flight schools will conduct activities soon. In addition, about 146 colleges now give ground courses to WTS students.

Since the Army and Navy expect total volume of air training to diminish, to provide only for replacements, the Services anticipate that their own schools can do the job. This, however, will result in short and limited capacity for training commercial aircraft, with the integrated system of nearly 10,000 trained employees, spare parts, and aircraft being suspended.

Trainers furnished, if necessary, by the government. A special grade of civilian pilot certificates could be established, with permission for further training in Army or Navy schools.

Under the proposed plan, the Federal government would aid in providing these scholarships. Each student would be available, if called, for military service.

Stewart said WTS in 1943 trained more than 207,000 AAF and Navy men as pilots.

He added that, in the first six months of 1944, WTS logged 1,924,256 hours, while in the last half the figure was 2,350,656 hours. At Dec. 31 there were 1,864 planes in the training program.

Taylor Heads ACC Development Council

Succeeds S. W. Vooches, of Lockheed Aircraft.

Irving H. Taylor, of Douglas Aircraft, has been named chairman of the Economic Development Council of the Aerospace Chamber of Commerce, succeeding S. W. Vooches, of Lockheed Aircraft, who has been chairman of the Economic Development Committee and council since their organization last year.

James C. Wilson, of Curtiss-Wright, was named vice-chairman and J. Story Smith, of Jacobs Aircraft Engine Co., was chosen chairman in charge of liaison activities of the Council as successor to Wilson. The other deputy vice-chairmen of the Council are Robert B. Lee, Sprague Gyroscope and H. W. Gehr of Northrop.

The Council authorized creation of a Commercial Aviation Committee, whose function will be that of considering problems relating to domestic trade development for the aircraft industry, including the distribution of the organization of that group seems to be worked out.

The organization committee approved creation of the position of Director of Economic Development in charge of the work of the council, including three service departments of the Chamber, which function under that office—legislative, statistical and information.

Industry Studies Termination Plans

Program believed ripe in right direction and good beginning to solution of vital problem.

First reaction of representative leaders of the aircraft industry to the contract termination program devised by Bernard Berisch was that the plan is a step in the right direction and a good beginning on a problem of vital concern to the industry generally.

Berisch, head of the War and Post-War Adjustment Agency unit to the Office of James F. Byrnes, War Mobilization Director, and his assistant, John Hancock, chairman of the Joint Contract Termination Board, proposed a uniform contract termination clause for fixed price war contracts which permits full payment at contract price for all articles completed by the contractor on termination date, and limit the profit on

articles not completed in six per cent. **Speedy Settlement** — Byrnes made the proposal effective with a directive to all government procurement agencies and said the progress made by Berisch and Hancock was an important move toward eliminating delay in a contractor's getting his money and a delay in an employee getting his pay.

There was a feeling in aircraft industry circles that the Berisch recommendation had given consideration to the idea that industry leaders had expressed from time to time and in the very important phase of a contract termination, had a reasonable and valid basis in a manner which would aid the industry. **Reservations.** — At the same time, these industry circles made some reservations, pending results of operation of the program to see whether generally, and the aircraft industry in particular, there was some adverse comment, but the attitude for the most part seemed midway between the two main points of view.

Berisch and Hancock, in their letter of transmittal to Byrnes, said that "manufacturers will benefit from having this termination article in their contracts" and added that "it will facilitate uniform handling of the termination of all contracts with which they have contacts, eliminating possible conflict and confusion over varying contract provisions, it will make for easier and more equitable settlement, give manufacturers a clear definition of their rights, reduce litigation."

Liquid vs Aircooled Motors Discussed

Relative merits of liquid cooling as compared to air cooling of engines were referred to briefly by C. A. Starnes and W. R. McCraway, engineering department, Chrysler Corp., in a paper presented at the recent meeting of the Society of Automotive Engineers.

"Broadly stated," they said, "compared to air, we have made engine and air percent greater horsepower would be required in an air-cooled engine than a liquid-cooled one to produce the same top speed in an otherwise identical airplane."

Power Reductions. — The power reductions with liquid-cooled engines are split about equally between reduced cooling drag, due to an optimum radiator size, and reduced fuselage drag, due to the better streamlined nose shape. The

power required to overcome the cooling drag and blunt nose fuselage drag are built into an increased engine and the overall shape is such that the nose of the fuselage can be readily streamlined."

The liquid-cooled engine radiator

can be chosen by the airplane designer to reduce cooling drag to the vanishing point, and the overall shape is such that the nose of the fuselage can be readily streamlined."

FEDERAL DIGEST

WPB Acts to Cut Industrial Toll Costing U.S. 18,000 Workers a Year

Five-point program planned to reduce plant accidents; Summary of week's activities in federal and war agencies.

War Production Board has undertaken an intensive campaign to reduce industrial accidents, impacting war production, according to Joseph D. Kossen, vice-chairman in charge of labor production. "Each year a full division of soldiers of production, the war is a nation at war, the loss of 18,000 workers is a heavy blow."

The anti-accident campaign will be carried out by the Industrial Health and Safety Section of the Labor Production Office, under the immediate direction of John M. Farwicks, Administrator, will be in the hands of Ray M. Brewer, director of the Plant and Community Facilities Service.

Five-Point Program. — Representatives of labor and management at

the first meeting of the advisory committee outlined a five-point program for this campaign. They recommended that the Industrial Health and Safety Section bring in the attention of Federal agencies with operational authority and technical knowledge of industrial health and safety that are interested with war production, establish procedures to insure the carrying out of remedial action, promote more intelligent and widespread acceptance by labor of its responsibility in the health and safety field, help promote the establishment of plant labor-management committees on health and safety, and assist in establishment of classes on health and safety.

WPB Production Board. — Because of continuing pressure for delivery of anti-friction bearings for military



NAVY DELIVERIES OF BIG DOUGLASES INCREASE

Deliveries to the Navy by Douglas Aircraft Co. of four-engine transports will increase substantially this year. The Chicago plant will reach full production on the midsize aircraft shown above, before the year ends. Plans above (known as the C-46 in the Army) is shown near Mt. Rainier, Washington

THE AIR WAR

COMMENTARY

Navy Planes, Increased 280 Percent In '43, to Double Again in '44

High quality of aircraft, held among best in the world, credited as vital factor in victories of fleet aircraft.

The year 1943 saw a 280 percent increase in aircrafts of the U. S. Naval Air Force (5,868 to about 16,000). According to current schedules, by the end of 1944 the figure will be nearly doubled again. The important point, however, is not the numbers. On all counts, U. S. Naval aircraft, type for type, are the best in the world. In addition to their quality as airframes, they fit perfectly into the tactics and strategy of the Fleet, and now that force operations.

► **Wings for Patrol**—An interesting reminiscence of this war, and an eloquent testimony to the vastly increased reliability of the airplane, is the Navy's widespread use of landplanes for long range over-water operations. Without detracting from the unique role played in the war by such flying boat types as the Catalina (PBY), Coronado (PBY-5), Mariner (PBM), and British Short Sunderland, both the U. S. Naval Air Arm and the RAF Coastal Command have made steadily increasing use of such land-based types as the Lockheed Hudson, Vega, Porthcawl, and Consolidated Liberator, and the Luftwaffe with the Focke-Wulf Kaufer and more recently the Heinkel 111. Requirements for such planes include large fuel capacity, speed, adequate defensive protection, power-operated gun turrets, armor and leakproof fuel tanks, and a large quantity of depth bombs.

The Navy version of the Liberator (PBY-4) meets these specifications so well that it has become the standard long range reconnaissance plane for armed seafaring. In order to increase the range, some of the armor and armament of the Army B-24 has been removed, and other alterations have been made. For medium range anti-submarine work the Lockheed Ventura (PV-2) is the latest designation, with two powerful Double Wasp engines, has been doing an outstanding job.

► **Torpedo Planes**—No weapon has played a more dramatic role in World War II to date than the torpedo plane. The obsolete Fairey Swordfish sinking the Italian Fleet at Taranto and the almost equally obsolete Douglas Dauntless (TBD) flown by the immortal Torpedo Squadron 8 at Midway, have been superseded by the British Beaufort and Barracuda, and our Navy's Avenger (TBF). This fast, powerful torpedo bomber, pitted out of the last of the torpedo planes of the Japs at Midway to the utter dismay of the Japs, Navy and flying is widely reckoned as the world's best.

► **Scout Bombers**—As the name indicates, most bombers have a dual function. The Convair B-36, one of the towering giants of the Pacific fighting, is a good example. Scouting for an advance of the fleet, they reported the presence of Jap patrol planes, assisted Talagi Harbor and brought back the information regarding the concentration of the Japanese shipping there, upon which the plan of attack was based. Then,

► **Navy Fighters**—Just as the RAF

landing their bomb racks, they became "live" bombers and in less than 12 hours blasted into oblivion 14 Jap warships and transports. The Dauntless (SBD) repeated such exploits over and over again, but is now gradually being superseded by the new Hellcat (F6F-5), faster, more powerfully armed and with greater range and bomb load. This ship, too, is widely regarded as the world's best in this category.

► **Command of the Air**—If anything has become apparent in the present war, it is that no Military or Naval operations can become successful without gaining and maintaining control of the air. This is Douhet's fundamental contribution to the strategy of warfare, first stated by him as far back as 1909.

Control of the air means the domination of the air over a specific territory to such a degree that our planes can operate there successfully and our enemy's planes cannot. Germany had it over Poland and France in 1939 and 1940 and for the first few months of their Russian campaign. The RAF had it decisively over Denmark and also during the air battle of Britain. The Japanese had it in Asia and the early Pacific fighting. In fact, in the U. S. A. V. G's case was the picture and not long after when Army-Navy-Marine Air force turned the tide at Midway, Guadalcanal and Eastern New Guinea. To maintain control of the air we must have planes that will knock down anything the enemy sends over. Here is the role of the specialized fighter plane, and is performed in job effectively it must have speed, rapid climb, maneuverability and concentrated firepower.

► **Navy Fighters**—Just as the RAF



Back the Attack — with War Bonds

Firepower of a Fortress

This is a night shot that Army pilots have learned to dread.

It is one of the reasons the Japs announced that America had introduced a "Teerwagen fighter plane," when a new model of the Boeing Flying Fortress first went into battle action in the Pacific.

It is why British Air Chief Marshal Sir Philip Jeapes recently declared: "It almost looks as though the Fortress type of bomber has defeated the contemporary fighters."

The main job of the Fortress is, of course, high-altitude precision bombing. Its objectives are often deep in enemy territory, hundreds of miles beyond the range of fighter aircraft. Fortress crews, therefore, must be equipped to handle the honest opposition the enemy can send against them.

They are! Each Fortress can spit thousands of bullets in any direction, with deadly accuracy up to half a mile. A formation of 8 Fortresses can place fire integrity of more than 100,000 square feet.

That's why the Fortresses are chosen, day after day, for the toughest assignments. Their crews are among the finest in the world. In addition to the almost unbelievable accuracy of their bombing, they have earned for the Fortress the description of "deadliest fighter-plane destroyer of the war."

You will find that Fortresses often can drop targets for B-17s and B-24s and, having whole-hearted confidence in giving integrity of more than 100,000 square feet.

BOEING

DESIGNERS OF THE FLYING FORTRESS • THE STRATOLINER • THE AMERICAN CLIPPER
THESE AIRLINERS ARE PROUDLY AIR REGISTERED HIGH-TECH AIRCRAFT

U. S. Army Air Forces		COMMANDER
First	Michael Field, N. Y.	Major Gen. Frank O'D. Hunter
Second	1st Lt. Commander, R. F. Davis	Major Gen. W. St. Clair
Third	2nd Lt. Commander, R. F. Davis	Major Gen. W. St. Clair
Fourth	San Francisco, Cal.	Major Gen. W. St. Clair
Fifth	Northern Australia-New Guinea	Major Gen. W. St. Clair
Sixth	Albion Field, Carol. Zone	Major Gen. Ralph E. Woods
Seventh	Hickam Field, Hawaii	Major Gen. W. St. Clair
Eighth	MacDill Field, Florida	Major Gen. W. St. Clair
Ninth	MacDill Field, Florida	Major Gen. W. St. Clair
Tenth	MacDill Field, Florida	Major Gen. W. St. Clair
Eleventh	India	Major Gen. W. St. Clair
Twelfth	Alaska	Major Gen. W. St. Clair
Thirteenth	Northwest Africa	To be announced
Fourteenth	New Caledonia	To be announced
Fifteenth	Burma	Major Gen. C. L. Chennault
Fifteenth	Southern Italy	Major Gen. S. J. Twining

AIRCRAFT PRODUCTION

Trainer Cutbacks Clear Way For Latest Model Warplanes

OWI explains curtailments in non-combat aircraft and obsolete models; record backlog announced by leading aircraft manufacturing companies.

By SCOTT HERSHEY

Significant trends in aircraft production are disclosed in the statement of the Office of War Information on curtailments of war output, based on data from the Navy, Army and War Production Board, including cutbacks in non-combat aircraft and greatly increased emphasis on bombers.

Navy has projected plans for plane production into 1945. Report on its principal cutbacks during the past six months, the Navy included "aircraft"—\$226,000,000 comprising trainers, transports, fighters, non-air-craft, gliders, outmoded patrol bombers and some observation planes."

► **Clear Production Lines**—Cutbacks in naval aircraft, it was explained,

are simply a limitation of non-combat and outmoded combat types to clear production lines for more advanced fighters and bombers — a trend also shared by the Army.

The report noted that almost complete elimination of the Navy's glider program resulted "from the fact that these craft have proved to be unsatisfactory weapons from the standpoint of Navy strategy."

► **Fighter-Bomber Expansion** — At the same time that certain types of naval aircraft are being cut back, heavy expansion in fighter and bomber output is projected for 1944 — an increase of 68 percent over 1943, reaching a total of \$1,000,000,000 by the end of the year.

The Navy said the dollar volume

increase in planes and ship construction for 1944 is exactly the same—\$1,300,300,000 for each.

A comparison of current estimates for the 1943 and 1944 plane programs shows that for 1943, it was \$3 billion dollars and in 1944 in 4 billions.

► **Cutbacks**—In a recent statement on Army cutbacks, the War Department was reported as making no immediate reductions in production, and its broad program for 1944 would be larger than in the past year. The Army program, of course, emphasizes bombers, particularly the heavy, and like the Navy will cut back on trainers and some other non-combat and outmoded types.

A tripled requirement for high-octane gasoline indicates the importance attached to the air program for 1944.

► **Backlogs**—Meanwhile, in the aircraft manufacturing, peak production in 1943 and record backlog of orders for 1944 were announced by leading companies in the airplane, engine, and propeller and parts divisions.

► **Douglas**—Current backlog of war orders at Douglas Aircraft totals \$26,000,000, largest in company history and fourth largest in the nation, with the company starting 1944 with commitments calling for increases of 35.4 percent beyond 1943's record figures.

The announcement said Douglas delivered \$6,448,000 pounds of combat planes valued at \$1,000,000,000 last year, reduced direct man-hours



CUTAWAY SHOWS "FORTRESS" CREW IN ACTION:

A Boeing artist depicts Flying Fortress in action in the South Pacific. In the nose, the bombardier is releasing bombs and the navigator and engineer are busy with their "African." The pilot is shown watching for enemy plane; the co-pilot is to his right. Top turret gun, manned by another engineer, is pointed for action; next come the bomb racks and then another top gun operated by the first radio man. Second radio operator uses the ball turret against underneath attack. Two waist gunners, also radio operators and engineers, deal death with .50 caliber machine guns. Behind tail wheel is the tail gunner, with his two guns.

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CORPORATION
SAINT LOUIS 10, MISSOURI

Shown here are typical L.M. Persons products. Catalog covering complete line available upon request.

Labels for products shown:

- AIR SPEED SWITCH Type No. 111
- PRESSURE SWITCH Type No. 103
- AIR RAM SWITCH Type No. 120-41
- SOLINONE VALVE Type No. 116
- SOLINONE VALVE Type No. 102-21
- SOLINONE Type No. 158
- ANTENNA COMPARATOR PRESSURE SWITCH Type No. 119
- SOLINONE SWITCH Type No. 181
- TEMPERATURE SWITCH Type No. 52X

Vacuum tubes and the post-war air...

The pattern of post-war, world-wide air transport lines is being drawn today. Its development and progress has been tremendously speeded up under the forced draft of wartime necessity. No one can doubt the practicability of such a transport system today.

The genius of aeronautical engineering, the courage and skill of the pilots and crews and the amazing efficiency of electron vacuum tubes are blazing these new trails through the skies.

If vacuum tubes in the ground stations that provide dependable communications. If vacuum tubes in radio beacons,

that keep the planes on course. If vacuum tubes in instrument landing devices that bring the transport to rest on terra firma through rough, dense weather... and if vacuum tubes in other now scarce electronic devices which make air travel safe and dependable.

Eimac tubes are the dominant leader in the field of air transportation. Long years of successful experience, thousands of hours of dependable service,

have made them first choice of the leading engineers throughout the world... our choice of all the major airlines.

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BETEL-McCULLOUGH, INC., SAN BRUNO, CALIFORNIA

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Eimac 759T

per plane unit more than 50 percent and in some instances as much as 75 percent, lowered per-unit costs to the military to an over-all 22 percent and paid out more than \$90,000,000 in taxes to federal, state and local governments.

† **Top 1942 Figure**—The output exceeded 1942's production by 304 percent and was approximately ten times Douglas' pre-Pearl Harbor production rate.

Most vital contribution of the company to the war effort was Douglas' production of heavy bombers—the company builds both Flying Fortresses and Liberators under license from Boeing and Consolidated.

The report touched briefly on two new Douglas warplanes now in production, the A-38 fighter-bomber and a recently designed dive-bomber, and characterized them as of extraordinary promise.

Douglas employment, now up 40,000 over Jan. 1, 1945, hit a peak last August of nearly 180,000. Schedules call for a pronounced upswing next month to a new midwinter peak of 200,000.

† **Patent**—Production volume of Packard Motor Car Co. will touch \$500,000,000 in 1948, the company reports. A new plant has been added at Toledo but even this has not met demands, and the company has turned over the necessary engineering and preparatory shop information to another engine builder.

Company estimates its 1948 business in Bell-Royce aircraft and Packard marine engines at \$355-\$380,000, which is three and one-half times greater than the company's biggest pre-production year.

† **Beech Aircraft Corp.**—Backlog of Beech Aircraft Corp. exceeds \$250,000,000, and will require capacity operations for at least two years, the company says.

Absenteeism at the plant from all causes, including sickness, was reported about half of the average for the aircraft industry as a whole in 1945. Computed from some 60 major aircraft producers.

† **Beech Absenteeism**—Beech said records of absences during the year show that, in terms of the ten-hour work day, time lost at Beech from improper or AWOL absenteeism amounted to less than a minute, in other words, not more than one out of every 4,000 went AWOL on an average weekday during the year.

An increase of 237 personnel was reported in number of Electrotuchs delivered to the armed services during 1945, comparing 1943 and 1943 production rates based on the fiscal year ended Sept. 30.



FIELD KIT FOR AIRCRAFT RADIO LOOPS:

An aircraft radio loop repair kit, designed for use at the front line to keep planes in the air with minimum interruption for servicing has been developed by Jack Rockwell, Bausch Radio division, so one time lost in shipping downed planes back to the factory. Aircraft radio loop field kit in complete field and port disassembled prior to repair is shown in photograph.

Acrona Norsemen

Acrona Aircraft's Middlebury, Conn., plant at holding up on a new contract to produce a U-2 version of the well-known single-engine transport, the Norsemen Norsemen.

The work is considered as a watershed in aircraft and it is anticipated that the Norsemen will enter the feeder planes, light transport field immediately after the war. Even the small Acrona cargo plane announced last year at being deferred indefinitely. Mass production of light planes is still Acrona's objective for postwar.

† **Glen L. Martin**—Dollar volume of aircraft production by Glen L. Martin Co. will approximate one billion in 1948, compared with \$884,000,000 last year and \$357,000,000 in 1943.

To meet increased production demands, including those involved in the building of 20 Mori-type flying boats for the Navy, Martin and between 3,000 and 6,000 additional workers would have to be hired between now and late spring.

Martin said some of the contracts contributing to the total have not been disclosed. The 70-ton Mori is now in operation by the Naval Air Transport Service, and under the new contract the first new boat probably will be delivered in about a year.

† **Studebaker**—Cumulative output by Studebaker Corp. of Wright Cyclone aircraft engines has reached 29,000 units, with 1943 production of 25,000 power plants for Flying Fortress.

Company announced production of three and one-half times as many Wright engines last year as were built by the company in 1942. Production has been held steady for several weeks and November was cited as an example when the company's average engine engines to engine were then half the average production of American four-engine bombers of all types.

Company operates plants in Fort Wayne, Ind., and Chicago, in addition to the assembly factory at South Bend.

New Rectifier

A new rectifier, heavy enough to operate heavy-duty aircraft gun turrets, is announced by Airplane Manufacturing and Supply Corp., North Hollywood, Calif. The company said the extra heavy in-rush current required can be delivered while ample voltage is maintained to prevent drop-out of turret relays and that the "no-load" voltage is within the safe limit of any delicate electronic device or other electrical equipment in a plane. The rectifying element is of the self-healing dry rectifying-copper sulphide type. No bulbous tubes are required. The bridge circuit is entirely insulated from the primary.

Spin-Resistant Models Studied For Post-War Private Plane Market

Aerospace engineers work on wing design with view to minimizing danger of loss of control following stall.

Aerospace engineers looking to the post-war personal plane market, cognizant of the fact that the primary form of loss of control and stability is the stall, followed by the spin, expect almost immediate refinements in the form of spin-resistant or spin-resistant designs, many of which were well under way in the immediate pre-war aircraft.

William D. Hall, chief engineer, Aerospace Aircraft Corp., believes the non-spinning characteristics will be accomplished through a design of the wing which will cause it to stall gradually with the stall originating over the center portion of the wing and the ailerons used will not stall the remainder of the wing when they are deflected to obtain lateral control. Further longitudinal control will be limited, he believes, so that it will be impossible to place the airplane in a complete stall position without a dive and a violent pull-up.

Stall Warning—He also sees an automatic warning of the impending stall, in the form of tail buffeting, or perhaps an instrument on the dash board for the benefit of the individual who might become careless. Hall's remarks in this connection

were made in a paper prepared for the War Engineering Annual Meeting of the Society of Automotive Engineers, at Detroit last week.

Wider Market Seen—Roughly one year after the war, Hall says, the individual will have a choice of aircraft for his private use which he will vastly surpass is that to which he has been accustomed in the past. While immediate post-war production models have not been conceived, the private type aircraft, the rate at which the aircraft industry has progressed has brought to light many improvements which will be applied to private airplanes.

These developments, Hall says, together with those occurring naturally in a field with intense competition—most aviation leaders feel that the private plane post-war competition will be terrible—will be bound to result in a number of excellent models from which the public can choose.

Helicopters—Hall believes the immediate post-war market will be supplied with ships which are identical to, or slightly modified from, those offered in 1940 and early 1941. Discussing the fixed-wing and re-

volving wing type and noting the publicity given recent advances of the helicopter, Hall says he believes they (helicopters) "are still a long way from offering the best compromise from the standpoint of the private owner, and that the fixed wing type will dominate the immediate future."

► Safety—Devices—Hall discussed safety factors of post-war private planes, performance, dependability, comfort and cost. He suggested,

► A low-powered, inexpensive training type aircraft, with either tandem or side-by-side seating arrangement, which will be a refined version of the pre-war light models to sell at approximately \$1,500.

► A medium priced, medium performance type which will be safe, and aimed at the private owner, available at around \$3,000. This aircraft, Hall explains, will be a cleaned-up version of the pre-war, two-place side-by-side, low wing, retractable-gear type and offered to persons who will demand maximum performance.

New Fleet Plane

Canadian plane starts work on unnamed combat craft.

Fleet Aircraft Ltd., at Fort Erie, Ont., has started production of an unnamed combat plane to offset reduced output of Fleet Corvetts. Present payroll will be increased.

Officials squelched rumors of a large layout early this year on the fact the company would like to be under government supervision. Carefully, Canada produces four combat planes—Lancaster and Memphis bombers, Canuck, and Canuck Heidmann. Fleet has made mainly single engine trainers and light craft, and a twin-engine bush freighter.

Magnetic Inspection

Ford aircraft engine plant reopens process each X-ray.

Magnetic particle inspection, which finds both surface and subsurface flaws, has been used to detect advances by Ford Motor Co., particularly in connection with the manufacture of parts for B-26 Liberator. (Two to page 235)

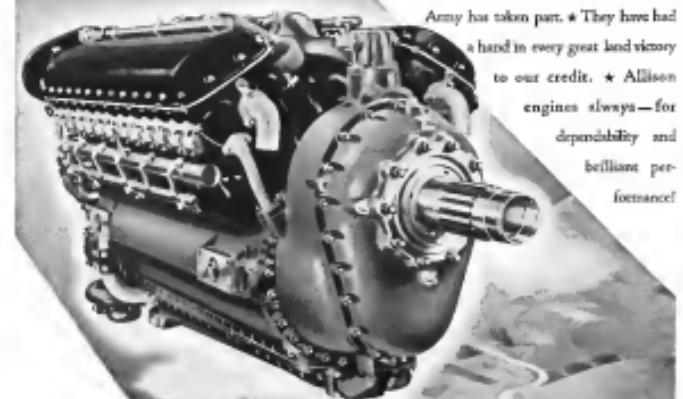


GOODYEAR WORKERS BEAT 'QUOTA SHIP' SCHEDULE

Part of the crowd of Goodyear Aircraft workers as they celebrate completion of their December "Quota Ship," a Navy Corsair fighter plane, twelve hours ahead of schedule. A recent issue of AVIATION NEWS told of the Navy's new employee morale program involving a "quota ship" campaign, to pit Corsair production workers racing against time to get a particular plane, and all others ahead of it on the assembly line, delivered to the Navy by the end of the month.

THE ENGINE THAT IS ALWAYS THERE

Allison-powered planes have been called upon in every major engagement in which our Army has taken part. * They have had a hand in every great land victory to our credit. * Allison engines always—for dependability and brilliant performance!



Every Liquid-ooled AIRCRAFT ENGINE
GENERAL MOTORS DIVISION OF THE A.M.C.
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LIQUID-COOLED AIRCRAFT ENGINES

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P-38—Lightning • P-51—Mustang • P-40—Warhawk • A-95 and P-51—Mustang

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KEEP AMERICA STRONG
BUY MORE WAR BONDS

Trail Blazing in the Skies

PIONEERING NEW METHODS



HOW GOODYEAR AIRCRAFT CORPORATION SERVES THE AIRCRAFT INDUSTRY

1. By constructing sub-assemblies to manufacturer's specifications.
2. By designing parts for all types of airplanes.
3. By reengineering parts for mass production.
4. By extending our research facilities to aid the solution of any design or engineering problem.
5. By building complete airplanes and airships.

THE RAPID-HEATING EXPLOSIVE RIVET GUN

is a new Goodyear Aircraft development that greatly simplifies and shortens the work of setting explosive-type rivets. Lighter and easier to handle, it can be used on surfaces heretofore inaccessible with other equipment, speeding up production.

BUILDING PROVEN AIRCRAFT



THE FAMOUS MARTIN B-26 MARAUDER

is equipped with major flight control surfaces, subassembled by Goodyear Aircraft. Since pioneer days Goodyear has been privileged to furnish Martin with many parts and accessories, and is one of its principal wartime suppliers.



GOOD YEAR
AIRCRAFT



erotor bombers and Pratt & Whitney aircraft engines.

Ford engineers say the method is more revealing than X-ray, yet requires much simpler equipment. They point out that magnetic particle inspection is a non-destructive test and that the piece tested need not be destroyed to determine its suitability for intended use.

» Theory — They explain that the theory of magnetic particle inspection is simple and based on the fact that a piece of steel may be magnetized by passing a current of electricity through it or around it. This tends to magnetize more heavily the areas where there are flaws.

Westinghouse Studies Reconversion Outlook

President Bachar minimizes changes necessary to shift to peacetime operations.

George H. Bachar, president of Westinghouse Electric and Manufacturing Co., in a year-end statement, says that notwithstanding the rising tempo of production, time has been found to survey the needs of the company in the postwar period "which seems to be approaching with certainty," and adds that his company will not require a major amount of reconversion.

He explains this by saying that it has been manufacturing in many of its plants the same type of products it manufactured in peacetime, the only difference being in volume and maximum use of facilities.



AAF DEVELOPS GUNNERY TRAINING DEVICES:

Two of the Army Air Forces' latest machines to test gunnery students are shown in these official Air Service Command photos from Patterson Field. On left is a deflection tracer utilizing project machine characters.

On right is another deflection tracer, using master. Student fires as planes flash by.

AVIATION NEWS • January 17, 1948

» Appliance Division—Major reconversion expenses, he says, will take place in the Kline Appliance division, where all normal activity has ceased and adds that "reconversion of all our plants to peacetime products should be accomplished in a matter of months."

"Notwithstanding the fact that in the first nine months of 1948 we manufactured and shipped more aircraft than we did in the entire twelve months of 1945," Bachar reports, "our backlog of unfilled orders still estimates to be over a billion dollars, if all the plants under our management are included. This is the highest figure it has ever attained."

New Helicopter

Aeronautical Products, Inc., now manufacturing precision parts for warplane motors, in Detroit and Columbus, Ohio, Ohio, plants have a prototype helicopter which C. C. Layman, vice-president, says has been tested and found satisfactory. Layman and plans are under way for production of the craft in both plants immediately following cessation of hostilities. The firm established its Ohio plant about two years ago when need for expansion was seen at Detroit.

More "Lancasters"

Production at Victory Aircraft, Ltd., Toronto, government-owned factory making four-engine Lancaster bombers, is expected to be speeded up.

Large numbers of workers are being transferred from a recently-closed explosive plant nearby to the Victory facilities, and announcements on Toronto radio stations asking for rooms for 1,000 new Victory aircraft workers went on the air. Requests were made at the same time for rooms for additional thousands of employees needed in the next few weeks.

New Gunnery School Devices Used by AAF

Specialists will maintain machines at twelve Air Service Command centers.

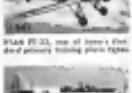
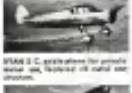
New intricate gunnery training equipment for aerial gunners of the Army Air Forces is being installed at twelve major Air Service Command centers.

The panoramic tracer is used to teach novice turret gunners how to shoot down attacking enemy planes. The reflectance tracer is used as gauging range. A deflection tracer teaches a gunnery student to lead a plane in his sights and compensate for speed differences. Knowledge of the operation and maintenance of the training devices includes use of motion pictures, electronics, amplification and sound reproduction.

The deflection tracer, most spectacular, records the tracer's score in red lights, like a baseball stadium, every time he scores a hit on a twirling, elusive model plane target, or on a plane shown on a motion picture screen.



"Take a letter
Miss Jones...."



The Ad Customers Wrote for Us

Advertising slogans are often created by advertising men around by the reputation of the products they desire. In contrast, the slogan "Ryan Builds Well" was inspired by the proven record of excellent performance and low maintenance of Ryan planes.

A SLOGAN THAT PROVES ITSELF

The hand of a War Training Service flying school in the Southwest writes from above at which Navy planes are being trained: "As a trainer the Ryan S.T. is tops. Maintenance is phenomenally low. Our S.T.'s have demonstrated they can take the exceptional abuse of flight training programs.... We regard it as the finest intermediate or secondary trainer we have ever used.... Many fighter pilots flying off carriers today can testify to the many they owe a lot to their silver beauties."

Another, the head of large scale training operations in Texas, writes: "... they have continued to be the most satisfactory training plane we have ever used.... Their maintenance definitely outstanding.... We have never received better service from any company.... I believe the high quality of our students has been to a large degree directly attributable to their training in these Ryan.... I am keeping one especially for my own use and for pilot-checking purposes."

BUILDING WELL FOR UNCLE SAM

Ryan's current activities include the engineering, development and manufacture of the most advanced type combatant airplanes and important assemblies for the service. Publication of detailed information on these is, of course, restricted.

RYAN

Rely on Ryan to Build Well



RYAN AERONAUTICAL COMPANY, SAN DIEGO — MEMBER, AIRCRAFT WAR PRODUCTION COUNCIL, INC.



RYAN PLANS WELL

Another organization that Ryan has joined recently is the San Diego Chamber of Commerce. This organization has been formed to help the local business community in their efforts to maintain a high standard of living.

PERSONNEL

William E. McAvoy, chief test pilot of the National Advisory Committee for Aeronautics, has been selected to receive the Octave Chanute Award for 1946. The award is given annually for a notable contribution to aeronautical sciences made by a pilot. Mr. McAvoy will receive it "for continuous

Standard Propeller division of United Aircraft Corp. at Wright Field, as materials manager of the division has been announced. He will be succeeded by Alvin G. Day, former chief engineer of Canadian Propellers Ltd., at Montreal.

Gen. S. Green has been appointed flight operations manager at Consolidated Vultee's Fort Worth plant, replacing the late Ben D. Green. He has been chief instructor at American Flying, a special instrument school at Ft. Worth.

H. L. Howard, formerly chief economist at the Dallas plant of North American Aviation Corp., has been appointed division controller of the Texas division.

Brig. Gen. Donald F. Steer has been promoted from the rank of colonel. Gen. Steer is Western District supervisor, AAF Materiel Command.

H. W. Anderson, new staff assistant to G. E. Berlin, Ryan Aeronautical Co. factory manager, has had 28 years of experience in nearly every phase of aviation. He was a major in the U.S. Army 35th Aero Squadron in World War I, a barnstormer with the Gates Flying Circus, a mechanic for Wright Aircraft Co., South American Aircraft Co., in charge of Atlanta Aircraft Co., in charge of



NEW AAF SAFETY CHIEF:

Col. George C. Price and the men of his office are working to keep up the record high. H. R. Arnold announced in his recent annual report. At the end of the fiscal year, June 30, 1945, the rate of accidents per 1,000 hours flown by the AAF was reduced from 0.739 to 0.716.

engine installations for Glenn L. Martin Co., and recently, before joining Ryan, general foreman of B-54 final assembly for Consolidated Vultee Aircraft Corp.

Personnel changes announced by Trans-Canada Air Lines include promotion of three city traffic managers to district traffic management. The men are W. H. Campbell, Ottawa, D. Alan S. Milford, Edmonton, and J. G. Robson, Vancouver. Other TCA



UNITED AIRCRAFT VETERAN HONORED:

The chairman and president of United Aircraft Corp. were on hand to present a 25-year pin to Joseph F. McCarthy, the company's controller, who has been chief financial official since the company's organization in 1935. For five years previously, he was in the same capacity for United Aircraft & Transport, predecessor organization. Left to right: Frederick B. Knobles, chairman, McCarthy and H. Mansfield Horner, president.

Appointments of

Stanol E. Clegg, formerly selling general manager of Sikorsky Aircraft, has just been named general manager of the Sikorsky division of United Aircraft Corp.

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changes: Stanley L. Bloses, traffic representative in charge of the Windsor, Ontario, plant; John C. G. Gandy, traffic manager; David E. Goss, traffic representative, Montreal, transferred to Montreal as traffic representative. His work is to include supervision of TCA traffic functions in Newfoundland; G. C. Heacock, traffic representative, London, Ontario, transferred to Winnipeg; Alvin E. Godbold, traffic representative, Winnipeg, transferred to Montreal.

Jesse B. Kline has been named employment manager of the Memphis division of Consolidated Aircraft Corp., in charge of the personnel department. Bill Nease is personnel services supervisor for Memphis.

James J. Curtis has been elected a vice-president of Monsanto Chemical Co., in charge of the long range program of development here and abroad.

George Mow, former industrial engineer for Douglas Aircraft Co., has been appointed district traffic manager for Western Air Lines at Los Angeles. Carl Hiltzeng, the Long Beach Junior Chamber of Commerce put out the "Wings Over the Nation" celebration during several successive years had him into active alliance with the industry.

Capt. Marion E. Clegg, who was for 12 months inspector of naval aircraft at the Curtiss-Wright plant, Columbus, Ohio, has assumed command of the new aircraft carrier USS *Salisbury*. He was succeeded at Columbus by Capt. John W. G. Bond.

Maj. Gen. H. E. Oldfield has been assigned as special assistant to Gen. H. R. Arnold for anti-aircraft. He will keep Arnold informed on all anti-aircraft research, development, and Air Forces and will have under his supervision anti-aircraft tactics, personnel, materiel and training for the AAF. He has assumed duties formerly in the office of the Assistant Chief of Air Staff, Operations, Comptroller and Regulators.

J. R. L'Asser, formerly executive assistant to the vice-president in charge of operations of Consolidated Vultee Aircraft Corp., has joined the Menasco Manufacturing Co., as works manager. He has made the following personnel changes: Max W. Tamm, became general manager; Elmer H. Tamm, production manager; Elmer H. Tamm, supervisor-in-charge of assembly; Alvin E. Black, supervisor-in-charge fabrication; Charles P. Hatt, supervisor of new stock and purchased

parts; Alvin A. Lander, supervisor manufactured material stores; and Alvin D. Marce, acting chief welding engineer.

E. O. Miles, formerly with the New York Central Railroad in Buffalo, N. Y., has become traffic representative for Pennsylvania-Central Airlines at Detroit.

Lt. Col. William H. Holden, USMC (retired), has reported for duty in position of chief of Marine Corps Deputy Chief of Naval Operations for Air.

Robert Borden Woods, general counsel of the National Labor Relations Board, with headquarters at Washington, has been appointed to join the New York City law firms of Frost, Hale and Courtney, general counsel for Consolidated Vultee Aircraft Corp. Mr. Woods succeeds Courtney, who has joined the legal staff at the corporation's San Diego, Calif.

A liaison desk for ferry operations has been established in the Navy Dept. under Lt. Cmdr. H. H. Hart.

Capt. James Graham, a veteran of ten years with Pennsylvania-Central Airlines, has returned from a 10-month assignment in Alaska where he served as chief pilot for about 15 PCA crews under the Transport Command Corp. Graham was on a cargo project that started in Edmonton, Canada, and made a landing in Alaska.



POSTHUMOUS OSM AWARDED TO DU PONT:

Gen. H. R. Arnold, Commanding General, AAF, presents the Distinguished Service Medal as a posthumous award to the family of Richard C. duPont, outstanding glider expert and authority, who was killed Sept. 11, 1945, in accident, involving an experimental glider. Left to right: Gen. Arnold, Mrs. Richard C. duPont, widow of the flier; Richard C. duPont, Jr., his son, and A. F. duPont, his father.



John A. Snobert, for the past several years vice-president of Pennsylvania Aircraft Co., Pittsburgh, Pa., has been named president of the Eastern Corp., New York. The appointment was effective Jan. 1. The Eastern Corp. which was formed by the consolidation of Eastern Magneto-Corp. and Alward Corp., manufacturer magneto, test equipment, synchro, synchronizers and various electronic assemblies for aircraft, automobile, marine and industrial insulation, condenser experts.

Floyd Bassett has been named assistant to Arthur Field, commander of the Fairchild Aircraft division at Hagerstown, Md.

A liaison desk for ferry operations has been established in the Navy Dept. under Lt. Cmdr. H. H. Hart.



Load Capacity of U.S. Planes Increased

by Over a
Million Pounds-

thanks to this all-metal self-locking nut.

All types of U. S. Aircraft—

"Fly With Their Boots On"-LIGHTER

This is an enlarged photograph
of one of the famous BOOTS
ALL-METAL SELF-LOCKING NUTS
(ANCHOR STYLE)

BOOTS

SELF-LOCKING NUTS

"OUTLAST THE PLANE"

ROOTS AIRCRAFT NUT CORPORATION, GENERAL OFFICES, ROOTS PARK, NEW CAMDEN, CONN.

TRANSPORT

CAA Air Traffic Control Division Outlines Post-War Regulations

Group maps plans to meet expected large scale expansion of private flying after return to peacetime operations.

By MERLIN MICKEL

While manufacturers eye the postwar possibilities for private plane sales, and city officials and airport managers are confronting the landing field expansion problem, the Air Traffic Control division of the Civil Aeronautics Administration is going ahead quietly with its own plans to cope with any air traffic increase the early post-war years may bring.

As early as last July, these masters were receiving serious attention. They were considered then the air traffic control and communications conference of the CAA at Chicago, and since that time studies along these lines have been conducted in all the division's districts with mounting anxiety due to heavy traffic growth during the war.

Conclusions—Some of the tentative conclusions reached by heads of the section are significant in view of the variety of prediction of post-war traffic from other sources.

mean of control equipment, or with none at all. This latter group, including the majority of private planes, probably will constitute about 90 percent of the postwar group, while planes with minimum control equipment will be an estimated 10 percent.

The division's attitude on the helicopter is interesting. "We are not too concerned about the helicopter," says Glen A. Gilbert, division chief. "We think from the standpoint of traffic control problems it will closely approach the automobile."

► Helicopters—This doesn't mean that Mayor La Guardia is right when he says the New York police department will take to the air to regulate traffic over the city in the first two years after the war. It does mean that Air Traffic Control at CAA anticipates that ships of this type will fly "control" at low altitudes, following such natural landmarks as highways and rivers. Equipment for blind flying, a "must" in the fully equipped conventional plane, would be unnecessary in the average helicopter, which could reduce its speed as visibility lessened, or land without an airport if bad weather closed in. Helicopters probably will do more cross country flying, too, off the beaten tracks.

The division heads emphasize a desire to keep air traffic control regulations as simple as possible, as they affect all types of flying.

"We don't want to control everybody," is the way Gilbert puts it. "In fact, we don't want to control anybody, except as it is necessary to the public safety and convenience."



WILHELMINA REWARDS PAN AMERICAN CREW:

The Pan American Airways flight crew on the Clipper that carried Queen Wilhelmina from the east coast to the British Isles last summer has received tokens from the Netherlands' colonial government, at the Queen's behest. At the presentation in New York, were (left to right) Edward H. Garcia, first steward, Stuart B. Robinson, navigator, Thomas B. Frickard, Jr., third officer, T.

Elmo Schurman, the colonial general, John C. Leslie, Atlantic division manager for PAA; William Van Pelt, private secretary to President Jaques; Clarke B. Williams, fourth officer; Edwin E. Brown, assistant engineer; Vernon Edwards, second steward and Milton Elford, radio officer. Six other crewmen were unable to be present.



PANELLED SKINNING. In a switch to new Martin plastic-phenolic combination, weight savings easily 50 lbs less per sq. ft. than other laminates. This, and other uses of Phenolite, mean big savings in weight and money for airline operations.



LEAD-PROOF PLATE TANK. America's first major development by Martin, this new tank applies to many models of B-57 aircraft. Martin experiments in anti-sealing fuel tanks date back 1939 in which more than 100 materials were tested.



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"FIRSTS" for Peace + "FIRSTS" for War

From Martin Research Laboratories!



ALL-PLASTIC HOSE. Group leader of the Bell laboratory was first used on Martin Marauder, now used on many U.S. aircraft. Martin plastic research group looks to 1947 to today since Martin plane census, 900 aircraft parts.



PROP. HUBS. In the General development of automation by Martin, are now standard on many types of U.S. aircraft. America's fine power-given aircraft are now equipped on the Navy's Martin PB-56A piston bomber back in 1937.

Martin
AIRCRAFT

Builders of Distinction • Aircraft Since 1919

The Glenn L. Martin Company, Baltimore, Maryland, U. S. A.
—SUBSIDIARY COMPANY—

ON this page are pictured just a few of the Martin firsts which help make U. S. aircraft second to none. Other Martin developments are still classified in military secrecy, while numerous others, individually minor but collectively important, are in use throughout the aviation industry to give America better planes and more of them. Vital to victory today, these Martin firms will play outstanding peacetime roles tomorrow, not only in aviation, but in scores of diverse industrial fields. Post-war products of every sort may bear the words "Made by Martin" as a guarantee of excellence.

THE GLENN L. MARTIN COMPANY, BALTIMORE, MARYLAND, U. S. A.
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—SUBSIDIARY COMPANY—

NEW AUTOMATIC
CUTTING SPINDLE. One
level is used by Martin engineers, provided for
the first time in a cutting spindle. After turning
the Marauder, the Marauder will be available for
the automatic cutting of propeller hub and
propeller blade assemblies.

POWER DRUMS. In the General
development of automation by Martin,
are now standard on many types of
U. S. aircraft. America's fine
power-given aircraft are now equipped
on the Navy's Martin PB-56A piston
bomber back in 1937.

AA Reports on Burma Road of Air And Alaska Operations With ATC

Line has grown to second largest international air transportation company in world as result of ATC contract, company claims

With the observation that it has grown to be the second largest international air transportation company in the world, American Airlines last week described its operations for the Air Transport Command, particularly those over the "Burma Road of the Air" between India and China.

The latest contribution to the story of what the planes are doing for the ATC tells of crews that have flown supplies into China from an Indian base since last August, on the Consolidated C-46's assigned to that operation, flying over the Hump, mountains and landing on runways so isolated that jeepseverally had to clear them of water buffalo and Brahman cows.

Spectaculars—The Burma and Alaska work was described by Americans as the two "most spectacular" of its operations in 15 months under ATC contract, which all together add up to 150 trans-Atlantic flights a month—3,200 overseas flights by the end of 1945—and operations by its crews to every continent in the world, 27 countries outside North America and 90 cities outside the

United States, among them nine Alaskan and nine Canadian destinations. American feels that this record is exceeded only by Pan American Airways.

India and Alaska work done by Americans has been turned over to the Army, but cargo loads for the ATC are still being moved and added to regular movements. An American crew, as April last year, used a C-46. On the first survey flight across the Atlantic from Newfoundland, direct to Marrakesh, French Morocco. These are the men, nevertheless, who received the Air Medal from Gen. H. L. George, ATC chief, last month. An AA crew also was in the first C-46 to fly to the Pacific, with cargo aircraft parts for New Guinea bases.

Burma Operation—On the Burma operation, American explains that the ATC took a group of its crews for the work July 22, 1943. First of the C-47's arrived at the India base in August. All loads were carried in aircraft from New York loaded with war material. The next four months saw 1,013 crossings between India

and China, and American says it is the only commercial air transport company, except for the China National Air Lines, to operate a route entirely within a combat zone.

Operations began on monsoon-bordered runways, and instrument flights were frequent, but the average was 100 miles an hour a day at the height of operation. To Dec. 1, AA carried nearly five million pounds of cargo to China, from a base hardly 50 miles from the rugged Hump zone.

Alaska—The Alaska job was in the summer of 1942, when American and other airlines flew converted DC-3's with the ammunition, machine parts, food and other recognized air cargo items, plus items such as barrels of gasoline and oil, lumber and nails, and other items generally reserved for surface carriers.

CAA Reveals its Role In Radio Shuffle

Qualified AAF with trained personnel for shift to longwave service.

Civil Aeronautics Administration reveals it is known that it has more than incidental interest in new radio installations to aid the ferrying of aircraft across the North Atlantic route.

In the new set-up, long-wave communication replaced short-waves to avoid interference by magnetic storms. It includes reporting and air navigation facilities in the ferry route to Great Britain. The War Department announced the change two weeks ago.

Personnel Trained—Called in by the AAF in August, 1943, CAA says it gathered trained personnel from the field in all seven of its domestic regions, assigned 20 civil and radio engineers to projects in Canada, Labrador, Greenland, Iceland and the United Kingdom. With these civilian engineers supervising the work, helped by available military working crews, seven projects were finished early in 1943, and ten remaining last August.

Included were high and low frequency communication circuits. Air to ground control tower circuits were installed at several of the project sites, radio navigation equipment and ground control and at five of these the CAA made equipment available. It recalls, by dismantling domestic facilities and transforming them for reutilization in foreign locations.



Mobile Control Tower Tested. The Civil Aeronautics Administration's new traffic control tower on wheels received its first trial at Washington National Air port last week. The tower now goes to Winstons, Ariz., at request of the Army Air Forces, for use pending installation of a stationary tower. At the microphone is W. F. Pearce, Washington airport traffic controller, who participated in the mobile control tower tests.



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Traffic Tower Sent To Arizona Field

Mobile unit built by CAA to serve at Winslow will permanent structure is tested.

First assignment for the new mobile airport traffic control tower completed recently by the Civil Aeronautics Administration and the Army is at Winslow, Ariz., where it will operate until a regular permanent tower is installed.

This announcement by CAA means that the tower had successfully passed its preliminary tests and was ready for an actual trial in the field. The traffic tower on wheels was demonstrated last week at Washington National Airport, before Army, Navy and Airline officials.

Built by CAA—The machine was built by CAA's Air Traffic Control division, in cooperation with Army's Engineering and Signals divisions, for use where a tower is needed before a permanent installation can be made. CAA says there is a possibility similar units may be used with advancing forces on the war fronts, where mobility is a necessity.

Aide from its lack of height—operators use field glasses to observe traffic—the facilities of the portable tower are the same as in the permanent. Flags, lights and radio equipment are the same. Mounted on a truck chassis, the tower has an overall height of 14 feet, or 11 (to clear in underpasses) plus the raised transparent top is

removed. Fixed towers are 40 to 50 feet high.

Uses Own Power—Radio on the mobile unit includes an intermediate frequency receiver, a very high frequency receiver, a low frequency transmitter and a very high frequency transmitter. Commercial power of the unit's own power, from an engine generator, may be used. Equipment includes a portable traffic control light, gun, time stamp, status altimeters, omnifacials, headlight, unit, emergency flares, drinking water and fire fighting equipment. If the power supply fails, the light gun may be operated from the truck battery as an emergency control. Two men can put the unit in operation in a few hours.

The mobile tower demonstration at the Washington air port consisted of conversations with pilots at various altitudes on the mobile tower's frequency, although the latter retained control of landings. At Winslow, where the mobile unit is being used at Army Air Force request, it will function until a regular tower can be built and equipped. Two men from CAA's Air Traffic Control division will go along.

The WASPs are now flying nearly 5,000,000 miles a month, including ferrying target-towing, courier duty, tracking, testing and experimental work.

Since 1942, they have flown more than 36,000,000 miles.

Aviation Groups Urge Decision on Lea Bill

Meetings held in Washington with view to bringing pressure for slowdown on measure.

By HLAINE STURLESFIELD

United action for a decision on the Lea Bill, H. R. 2400, was the objective of several aviation groups which began a series of meetings in Washington last week.

The bill is being up in the House Rules Committee, having been referred to the House by the Interstate and Foreign Commerce Committee. The Rules Committee must hold additional hearings before giving right-of-way to the bill. Hearing had not yet been scheduled at this writing.

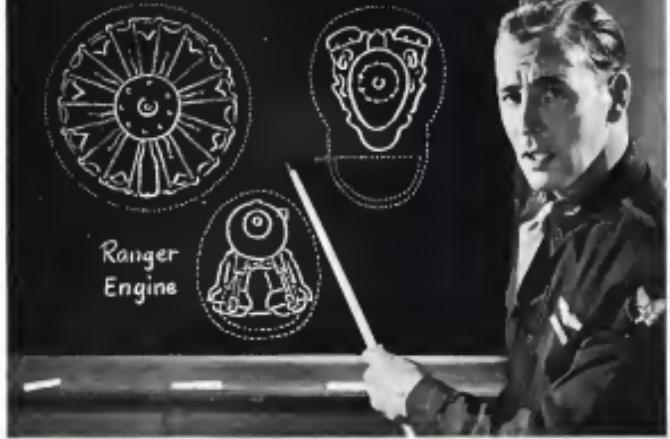
Present—Groups represented at the meetings are the Air Transport Association, National Aviation Trade Association, Personal Aircraft Department of the American Chamber of Commerce, the National Aeronautic Association, the National Association of State Aviation Officials, and the insurance group.

Civil Air Patrol declined to par-



Shoulder Signals Signals: Pilots on the Burma Road route, like the two American Airline flyers shown here, compare their shoulder signals—"Shoulder Rotators." Note the sleeve insignia of the China-Burma-India wing and the back identification of the bearer of the flag as a United States citizen who has come to aid China and needs contact to the nearest friend base, if in trouble.

Conventional Engine Types -



Why Ranger Turns The Power Plant Upside Down

The Ranger Aircraft Engine is unique.

It is the only inverted, in-line, air-cooled engine in production today.

Fairchild engineers worked ten years developing and perfecting this outstanding inverted power plant. They sought a practical engine design that would:

1. Make flying safer by giving the pilot greater vision than is possible with conventional engines.
2. Increase efficiency of performance by reducing and streamlining the air-resisting frontal area.
3. Simplify the usually complex task of maintenance and daily inspection (a vital safety factor) through

easier access to the power plant of the airplane.

That the Ranger Engine sits the bill on these 3 vital counts . . . and on others, too . . . is attested by the fact that the U. S. Army Air Forces have chosen Ranger-powered planes, the famous Fairchild PT-19's and AT-21's, for the task of training quickly thousands of pilots and aerial gunners.

When Fairchild engineers turned aircraft engines upside down and produced the Ranger, they did it with an eye to safer, speedier, more efficient sky travel—another example of Fairchild's "touch of tomorrow" in the planes of today.*

Buy U.S. WAR BONDS AND STAMPS

RANGER

AIRCRAFT ENGINES

Division of Fairchild Engine and Airplane Corporation • Farmingdale, Long Island

AVIATION NEWS • January 15, 1944

tuition on the ground that it is non-military. Civil Aviation Administration and the Board and Congressional officials were not invited as it was felt they could not help the various groups to decide.

Question—Specifically the question before the meetings is whether they can agree to keep the H-81 bill as drafted, subject to amendment on the floors of the House and Senate, ask that the bill be re-committed, or call for a new bill. The latter two cases amount to about the same thing and additional hearings would be necessary. It was assumed that the rules committee would report the bill open to amendment on the floor.

The opinion was expressed that in case of recommitment no legislation could be put through this session, which ends the 73d Congress, probably near the end of 1944. All pending legislation will expire with this Congress.

Solomon New Head Of Northeast Board

Collins elected president to succeeded chairman of division.

Sam Solomon, president of Northeast Airlines, was elected chairman of the board last week. Paul F. Collins, of Boston, who has been a board member, was elected president, succeeding Solomon.

Solomon explained that it was becoming increasingly difficult to devote the necessary time to his various war and other activities without a permanent residence in Washington. In addition to his chairmanship of the Airlines Committee for U. S. Air Pensions, he has been working up the affairs of the Airlines War Training Institute, which he headed. As chairman of Northway's board, he will continue to give time to the broader questions of company policy.

Board Members—Electric-Milton E. Anderson, operating vice president, and Robert F. Bradford were elected directors to fill vacancies caused by the resignation of Lawrence F. Whittier and H. Danforth Starr. Whittier was a railroad representative on the board, being assistant to the president of the Boston and Maine, which with the Maine Central recently reduced its holdings in Northway to eliminate the question of control.

Robert S. Swan, war president, treasurer and director, has dropped his treasurer duties, in which he will be succeeded by H. LeRoy Swan, former comptroller.



WING CONTROL LOCK:

J. Earl Steckesser, assistant manager of Washington National airport, developed this simple control lock board, which when used, prevents use on planes where crack between aileron and wing is narrow. The blocks are at site at the airport.

Disposals—Members of the board are Sam Solomon, Collins, Swan, Anderson, David Hawes, Radio Institute, James F. Fitzgerald, Regis L. Vidal, and Bradford, clerk.

DPC to Offer First Batch of Used Planes

From 1,000 to 1,500 expected to go on market in next few months.

The ink hasn't been dry long on DPC's formula for used plane price cutbacks before the Civil Aeronautics Administration announced that some of the planes used by the CAA War



NEW PCA TICKET OFFICE:

Pennsylvania-Central Airlines' new ticket office, opened recently in the Field Building in Chicago, offers the most complete service of any PCA has put in operation.

Training Service in its training program will be released for public use.

The planes are owned by the Defense Plant Corp., but are surplus to the pilot training program because of the Army Air Forces' transfer of excess aircraft type and light training planes, and other reasons.

1944 Expected to Be Offered—Best estimate was that the number to be put up for sale in the first batch would run up under 100, but in the next couple of months would grow to around 1,200 or 1,500. Of the 7,500 planes in the program, the DPC owned 3,165 as of last Dec. 23. If the program goes out of business, all these probably will be made available to the public.

The DPC ceiling formula, applicable to used planes of not more than 500 hp, was that submitted to the Office of Price Administration by the CAA, and prepared the way for the sale. Agents for the DPC in determining what is surplus and carrying out the sale are R. McLean Stevens, John P. Morris, director of training, Jim P. Morris, director of CAA War Training Service, and W. G. Stevens, director to Morris.

Checkups—A memorandum from the director to regional managers, explaining the disposal planes, stated that reduction in quota at certain training centers and discontinuance of training elsewhere had contributed to the surplus. Several 65 hp. liaison planes have been made available to the service by the AAFC to replace DPC-owned 66, 35 or 60 hp. planes used in Army flight indoctrination centers.

Some surplus will occur at secondary training centers through quota reductions or training discontinuance. The same is true at certain

Navy flight training centers. Other sources will be cross-country centers where excess planes were assigned some time ago in the Army's flight instructor program, but maintenance work has progressed, facilitated by improved supply of repair items, so the point of view of the DPC planes may be that for sale.

CAA regional and district offices where the planes are located will post lists of these for sale, the offering being on a "where-is, as-is" basis with prospective purchasers permitted to inspect the planes before bidding. Date will be set for bids for each plane, to be filled with the regional office, accompanied by a certified check for 10 percent of the bid price. Bid forms will be available at CAA regional offices and WTB field offices. Sales will be subject to DPC approval.

Philadelphia Airmail Service Restored

Airmail service to Philadelphia was restored last week by an order of the Civil Aeronautics Board which authorizes All American Aviation to use Washington, D.C., as a temporary terminal, pending the restoration of air service at the

Municipal Airport in Philadelphia.

For reasons of safety, all air traffic to Philadelphia Airport was stopped by a Board order Dec. 23. Besides All American, United Air Lines, Transoceanic & Western Air, Transoceanic, All Lines and American Airlines were affected by the suspension of the DPC planes may be that for sale.

Lighter Equipment. All American's lighter equipment makes possible an air to the Northeast Philadelphia Airport, now under construction. The company plane to have air mail leave Philadelphia daily at 8:45 p.m. and proceed to Washington via Chester, Pa. and Wilmington. It will return the following morning, leaving Washington at 8:45 a.m. The Post Office anticipates that about 300 pounds of mail will be shipped out of Philadelphia each evening, with the prospect of about 400 pounds from Washington on the return trip.

Although the Board's order states that authorizations for All American's operations is only until the Municipal Airport is reopened, or the Northeast Airport completed sufficiently for heavier planes to begin operations there, it feels that the temporary entry at Washington was a good "foot-in-the-door" for All American, pioneer perhaps company.



EXPORT'S "FLYING ACE":

Interior views of one of American Export Airlines' "Flying Ace" aircrafts, which currently are not passing earlier totals of passengers and baggage since AEA began scheduled service a little more than a year and a half ago. The company's routes, among them that from New York to Foynes, Ireland, link a dozen

KLM Asks 4 Routes

An application for what would be virtually an around-the-world air system was filed with the Civil Aeronautics Board by Royal Dutch Airlines (KLM) and Royal Netherlands Indies Airways (KNILM) last week.

KLM has requested four routes, and two of which have terminals in this country: New York and San Francisco. One route from Amsterdam, the Netherlands, to New York would go by way of England, Ireland and Newfoundland, and an alternate would have Portugal, the Azores and Bermuda as intermediate points.

Via Manila. Coming into San Francisco from Batavia, KLM wants to fly by way of Manila, Cebu, Wake Island, Midway Island and Honolulu, as well as via Australia, New Zealand, Noumea, New Caledonia, Sumatra, Coromandel Island, Palau Islands and Honshu.

The other routes sought by the Dutch airlines are from Batavia to Manila, by way of Samarang, Soerabaya, Java, Bandjarmasen, Balikpapan, Tarakan and Dutch Borneo, and between Batavia and Tokyo, via Tarakan, Manila, Hong Kong, Shanghai, Nagasaki and Okinawa.



Beech Aircraft



C O R P O R A T I O N

BEECHCRAFT SEE DRIVING THEIR PART

WICHITA, KANSAS, U. S. A.

Over hills and rolling valleys, these Beechcraft AT-11 bombing bombers carry out a mission. Their crews are preparing themselves for a rugged job — flying bigger bombers over Axis targets. How well they do that job depends greatly on their training . . . and in combat results justify, American airmen are superbly trained. Bombardiers, pilots, and navigators, more often than not, perfect their skills in Beechcrafts. . . . The record of these Beechcrafts, in the grueling grind of military training airmen, confirms the reputation earned by their commercial prototypes in pre-war service from Akkavit to Little America — a reputation for doing efficiently and capably any job assigned to them, no matter how rugged that job might be.

Reconversion and Contract Termination

American industry is dedicated to an all-out effort to achieve victory, and its good faith in this direction is simply demonstrated by the results.

American industry also is dedicated to making democracy work effectively after the victory. And it is toward this objective that industry must prepare itself to guide the processes of demobilization and reconversion in order to minimize the dislocations and chaos which too easily can result from so tremendous a task.

We exercised foresight from the very beginning of the war mobilization program. Let us now exercise foresight in the approaching changeover from a war-time to a peacetime economy.

The first step in converting American industry from military to civilian production is the termination of contracts between the government procurement agencies and the producers. There are now in force war contracts amounting to tens of billions of dollars. As the demand for weapons of war decreases, the Armed Services will undertake to cancel contracts. With the emphasis shifted from weapons of one category to weapons of another, requiring many billions of dollars of contracts already let to be terminated, it is hoped that the experience now being gained in this work will provide the basis for effective and sound procedures when an avalanche of cancellations comes later.

Many complex problems involved in the termination of contracts will materially influence the success of the entire reconversion program. Once war demands fall off sufficiently to permit the renewal of civilian production, we will have to act with great speed if we are to avoid large-scale unemployment. Prompt financial settlements of contracts and the rapid clearance of plants are of immediate and great significance. In many cases the removal of equipment and raw materials will be more important than money payments. The allocation of raw materials for civilian production will be paramount importance.

Government agencies obviously must exercise great care in spending the people's money and in protecting the interest of the public against excessive payments. Unjust exactions in the compensation of the people will not be condoned and will reflect favorably upon management to present undated claims. But long-delayed negotiations, which will retard the initiation of civilian production, will likewise tend to be avoided.

The contracting agencies and the manufacturers both know that the greatest losses in the reconversion period will result from delays in getting peacetime production under way. The greatest potential waste lies in unemployment and in idle

plants. The magnitude of such losses to the public can be far greater than the money spent in liberal settlements, to the manufacturer, these losses can represent vastly more than the extra funds that might result from interminable litigation. Policies must be firmly established now whereby the manufacturers, including subcontractors and suppliers, will receive substantial settlements immediately in order that ample funds will be available for reactivating plants and accumulating necessary inventories of peacetime goods. Nor must we overlook the fact that the uncertainty of long drawn-out disputes will have a stifling effect on enterprise and that final settlements, therefore, should be made as promptly as possible.

Plants that are equipped largely with special wartime tools and machines and that are fully stocked with materials, components, and finished military products will not be able to undertake any substantial degree of conversion until this machinery and this inventory are removed. Advance arrangements must be made for the prompt clearance of great numbers of parts the country over. Adequate warehousing facilities must readily be available so that the changeover to civilian production will not be hampered.

As war demands decline, civilian output will be restored; and while we recognize that the demands for munitions must vary as the strategy of the military leaders is changed, it is hoped that the Armed Services already have or soon will develop schedules of their continued needs under different strategic assumptions. If we know in advance the probable curtailment in war requirements we are in position to estimate the timing and the quantities of raw materials, the number of workers, and the industrial facilities which will be available for peacetime purposes. It will then be possible to integrate the lifting of restrictions on civilian production with the draw in war production.

Needless unemployment and idle plants will prevail if restrictions on the output of civilian goods are removed at a slower rate than available manpower, materials and plant permit. On the other hand, if the controls on civilian production are removed prematurely or too freely, then the production of civilian goods will compete with war-hampered manufacturing.

There will be great concern and pressure for eliminating all restrictions as soon as any measurable quantity of materials and equipment of workers are freed from war work. It will react adversely on industry as well as on government if these pressures are heeded indiscriminately, thereby retarding the production of necessities for our boys who still will be fighting and dying at the front. The coordination of declining war demands with increasing civilian production probably is the

most difficult and at the same time the most important task in our entire reconversion problem. Advanced planning and sound judgment are essential.

An order of priority for initiating post-war or civilian production must be prepared beforehand. The schedule of resumption of peacetime production should be governed by the amounts of materials, manpower and facilities that are available as well as by the relative needs or importance of different products. There will be strong competition for priority among the various kinds of consumer goods, equipment needed for reconversion, products goods required for expansion and modernization, and export demands. Relative need obviously is the most compelling criterion. But because of the importance of expediting reconversion, earliest consideration is urged for the tools and factories and models which will expedite large-scale civilian production when adequate labor and materials are available. In any case, advance schedules will be needed to avoid a makeshift, piecemeal lifting of controls on the basis of who should be readied.

Another difficult problem of the reconversion period will be to minimize the distortion of inter-industrial and inter-industrial relationships. Many varieties of consumers' goods compete for the consumer dollar, and some industries will offer strong resistance if the green light is given first to industries whose products may thereby acquire a time advantage.

Even more difficult will be the matter of competition between companies producing the same products. Some manufacturers may find themselves tied up with continuing war contracts with restrictions on their peacetime products suddenly lifted and their competitors free to take advantage of the situation. The declining need for different kinds of war material will vary greatly, and some producers inevitably will be available for peacetime production considerably in advance of some of their competitors.

This raises the question of victory models or nucleus plans to eliminate competitive advantages among producers of identical products during the time when all are on an equal footing again. Policies concerning that should take into account the degree of the extent of competition, the degree which conversion might bring, and also upon the time interval during which these advantages will prevail. Such programs necessarily must increased government control, hence they should be adopted only under the most pressing circumstances.

There is the important question of termination as between large and small plants. Fairness must be exercised, and undue advantage to either group must be avoided in extending opportunities to continue receiving profitable war orders or in getting back into civilian production. The problems of small manufacturers must not be neglected in this period. Likewise, any restrictions on new ventures and on more vigorous competition must metaculously be avoided.

There also is the question of communities which have been greatly enlarged and others which actually have been brought into being by the war. It might be advisable to have some control over these areas first in order that the workers might be encouraged to migrate elsewhere while employment prospects are most favorable. Also, if continued production of some armaments is contemplated after the war, it might be well to concentrate this

production in communities which otherwise would be stranded.

If the process of terminating contracts is to be gained into meeting continued demands for munitions and also expediting reconversion, then the Armed Services must accept broad policy considerations as criteria for cancelling contracts. Procurement officers might be inclined to cancel contracts with all high cost producers first. Or they might be inclined to cancel small producers first so as to reduce the administrative burden. Then again, they might cancel the newer producers of specific products rather than the older, time-tried manufacturers.

These procurement criteria may all be highly desirable and efficient but other important considerations such as those mentioned above must be given proper attention. Demobilization cannot be a separate process from reconversion. They must be united. The termination of contracts is a demobilization task, but I am confident that the procurement agencies will give the proper importance to this in facilitating reconversion and that they will take full cognizance of the policies necessary for giving every assistance to initiating peacetime production.

I have not attempted to raise all the important policy questions in terminating contracts, nor do I propose specific solutions for each major problem. Rather it has been my purpose to indicate the complexities of the task which faces us and to urge that intelligent and sound plans be developed now while there is time. By so doing, we can avoid the disastrous and economic disorder which otherwise might characterize the reconversion period. The better we are prepared, the more rapid will be the resumption of full employment and good business after the war is won.

This job of changing America's industrial pattern from war to peace speedily and efficiently, is one which will tax the talents and knowledge of the ablest business men of the country. These men can, and I am sure that they will, match this task with the same energy and determination that characterized their efforts in the period of mobilization.

Industry advisory committees were established to cooperate with governmental agencies in the great task of conversion to a full war economy. These committees are the means through which industry has the opportunity to play a major role in the solution of the problems of reconversion. It must assume that responsibility or accept the consequences in the form of enforced government control. Industry must take a renewed interest in these committees and make certain that our best minds and strongest men are available for the challenging job of conversion which we face now. It is a job that must be done well if we are to have a good start on the road to a greater democratic and free enterprise nation.



President, McGraw-Hill Publishing Company, Inc.

FINANCIAL

Aircraft Equities Selling at Prices Equal to Last Year's Earnings

Study of Beech and other companies reveals curious sidelight in shares of plane manufacturing firms; 1943 net expected to top previous year.

By ROGER WILCOX

Aircraft equities in many instances are selling at prices equivalent to last year's earnings. By inference, aircraft earnings for 1943 will most likely exceed those for 1942 by considerable margins.

An indication of this trend is afforded by the results recently reported by Beech Aircraft Corp. for the fiscal year ended Sept. 31, 1943. For this period, the company showed net profits of \$4,025,000 or \$1.64 a share and compared with adjusted earnings of \$1,500,000 or \$1.40 per share for the previous year. Consolidated results and pro formas for additional firms reflected aggregate \$26,324,000 in the latest fiscal period. It may be some time before the company can be certain it will not be subject to any further refund for the current period. The reported profits, in any event, are substantial and in the light of the amount of refunds already indicated, may not be adjusted to any appreciable extent—if at all.

► Sidelight—The Beech earnings reveal the curious sidelight of the company's stock selling at a price approximate to that of reported annual earnings. Thus, too, is a characteristic of many other aircraft equities.

The key to the abounding good 1943 results for Beech—and for other aircraft companies (as their reports will reveal)—is simply volume production. Profit margins are unusually low, generally less than 3 percent. Billings, however, have been at sustained high levels throughout last year, thus making for profitable results. Aircraft production for 1943 is estimated at about \$11 billion and compares with \$5 billion for 1942.

► Refunds—Material refunds have been made but observers strongly believe the aircraft companies will be permitted to retain for 1943 at least the same amount of earnings

as reported for the previous year. Further, any constructive action on price reorganization and contract terminations, now being considered by the Beech group, can prove to be very beneficial to aircraft earnings.

A guide to 1943 aircraft earnings may be found in 1942 final results, which can serve as a conservative minimum estimate. Table presents these data along with 1943 earnings and market prices for representative aircraft manufacturers.

Annually, it can be seen that in most instances 1943 was a better year than 1942. Volume production, however, may well make 1943 the most profitable year for the aircraft industry as a whole. Yet, the anomaly exists in that current market prices, for many of the aircraft equities, are equal to recent annual earnings. The market evidently has been cautious in latest too optimistic a view of the future in store for the aircraft builders.

The process of discounting the future, however, may have gone a long way when prices conspicuously ignore basic values. For example, with at least two and one-half years of earnings and stocks selling at only current market earnings, there develops the likelihood of basic asset values becoming established at material discount levels. For instance, Beech is estimated to have a book value of about \$66 per share. Yet, the company's stock sells at about half that price. Similar ratios persist in Beech, Curtiss-Wright, Martin and possibly a few others.

► Balance Sheet—As a matter of fact, if current balance sheet details were now publicly available, it could be seen that a number of companies have net working capital in excess of the market price of their equities. In other words, at present prices, if these companies

were liquidated, the stockholders could recover their original investment in the form of cash or its equivalent and retain a worthwhile interest in the plant and other assets of the enterprise.

These unusual price disparities have existed at one time or another for many industrial groups—particularly in the capital goods category. No clear-cut formula is possible, however, as few financially sound companies are ever liquidated immediately and voluntarily for the benefit of the stockholders. A series of deficit years can erode many a healthy cash balance.

Nevertheless, a look at basic asset values can prove heartening to those who have hope and investments in the aircraft industry's prospects. In fact, it is primarily this consideration, supported by other factors, which has led to noteworthy strength in aircraft recent weeks.

Aircraft Earnings and Market Prices as of January 6, 1944

Company	Aircraft Holdings		Market Price
	1942	1943	
Beech	\$ 1,000	\$ 1,640	\$800
Curtiss	1,000	1,000	800
Eastern	1,000	1,000	800
General	1,000	1,000	800
Northrop	1,000	1,000	800
Stearman	1,000	1,000	800
Transoceanic	1,000	1,000	800
Wright	1,000	1,000	800
Yerkes	1,000	1,000	800
Total	10,000	16,400	\$800

Source: Standard & Poor's Aircraft Industry Survey and Company Reports.

Financial Reports

► Sales—Aircraft reports for the six months ended Oct. 31, 1943, a net profit of \$645,475 after charges and a provision of \$1,350,457 for federal taxes on income, equal after provision for taxes, to net profit of \$1.55 a share on the \$17.25 common. These earnings are subject to ratification. They compare with net profit of \$323,716 or \$1.75 a common share for the six months ended Oct. 31, 1942, when federal tax provision amounted to \$1,194,047.

Atlas Largest Holder Of Northeast Stock

Longest single stockholder in Northeast Airlines Inc. is now Atlas Corp., New York holding company, according to testimony last week before a Civil Aeronautics Board committee, closing the long series of hearings on proposed additional air service from Boston to New York.

Sam J. Solomon, chairman of Northeast, and Atlas now hold 96,000 shares. Beech and Martin and

Maine Central railroads, he testified, have reduced their holdings drag a 30 to 10 percent interest, having disposed of 100,000 shares. Of these, Atlas got 45,000 and had option on another 45,000, which later was sold through other channels.

Lawrence B. Whittlesey, assistant to Beech & Martin's president, has resigned as vice-president and director of Northeast.

Scaled Models Aid Plant Layouts

Use of scaled models to improve floor space efficiency in the plants has been initiated by Fleetwings division of Kaiser Corp., Inc.

Knowing that efficient layout may mean the difference between profit and loss, the company has studied various methods used by other companies, including paper cut-out models of only two dimensions, and drawings. It has adapted models of wood models, of greater shape, painted in distinctive colors and placed on a surface representing the overall floor layout of the area under study.

► Portability—Models are of various sizes. Floor is sheet cork. Occasionally plaster is used for shaping. Uprights and walls are indicated with detachable coating of transparent plastic. Gypsum parts can cover obsolete floor plans to permit reuse of the floor. Production flow lines are shown by colored tapes. Models are portable.

Photographs are made at various stages which serve as basis for study by the supervisors whose department is being revised. Experience has shown that the models are "indefinitely better" for discussion of layout problems.

During November, Bell Aircraft issued 10 percent stock dividend while retaining the holdings of many of the officers. Major changes among the Bell organization officials were as follows:

Officer	Stock	Dividend	Total
Charles L. Beeson	200	20	210.00
Lawrence B. Whittlesey	200	20	210.00
Sam J. Solomon	100	10	110.00
Robert J. Winkler	200	20	210.00
Walter A. Tamm	200	20	210.00

Martin Pension Plan

Glenn L. Martin announces an employees' pension plan under which all employees of Glenn L. Martin Co. and its subsidiaries who are under 65 and who have had two or more years of continuous service with the organization will benefit.

Approved by the Treasury Department, the plan was said to be

UAL Expert Sees Risk In Diesel Aircraft

Davies forecasts plane engines up to 4,000 hp and interest movement in aluminum alloys and plywood planes.

Predictions by an air research expert of a "considerable increase" in civil aircraft use of diesel engines probably in the next decade almost coincided with Army disclosures that jet propulsion principles had been proved and found practical.

W. D. Davies, superintendent of research for United Air Lines, told the Chicago section of the American Society of Mechanical Engineers that the next five years may see aircraft engines developing 4,000 hp, with weight per horsepower reduced from the present 1.4 pounds to one pound and a half. Prospects also were given for the use of magnesium in aluminum alloys, magnesium plastic bonded plywood, plastics and stainless steel for use in aircraft manufacturing.

► Costs—Developments may bring airline operating costs down to 15 to 20 cents a ton-mile within 10 years after the war, Davies expects, as compared with 40 cents now. He thinks 13-hour transcontinental schedules and 350 mph block-to-block speeds, instead of the present 800, will be commonized by 1948 airfares within five years after the war ends.

Davies has been with United eleven years. He is a graduate of the Armour Institute of Technology.



Model Improves Plant Layouts: Fleetwings division of Kaiser Corp., Inc. is using scale models to improve plant layouts. A finished model proposal is shown above.

Selling Aviation Short

"THE ONLY PEOPLE selling aviation short are those who make a living at it." A well known Washington correspondent for a big midwest newspaper was explaining with more colorful language than can be reproduced here. His charge was leveled at—strange anomaly—the publicity chief for an airline.

The publicity man had just finished putting the newspaperman right on some things. He had said helicopters were greatly overrated and shouldn't be expected to develop into much, that this country's potential interstate air traffic was far less than most air transport leaders will concede, and that the international air traffic picture was pretty black.

The newspaperman continued his complaint with a long and documented statement that everyone he talks to in aviation is disconcertingly stuffy about flying possibilities, because of unsolved technical difficulties which will prevent lower fares and cargo rates by next week.

The interchange was followed a few days later by the jet propulsion statement, with competent authorities admitting that the first plane we ever built with this revolutionary power probably has already flown more than 450 miles an hour at 40,000 feet or better. And this plane by no means represents our only effort in the new field.

Predictions are dangerous in any business. More so in aviation. Framed and hanging in the office of this writer—as a constant reminder—is an editorial which emphasizes this, from the reputable and thoughtful *Scientific American* for July 16, 1940. It points up the need for care in selling aviation short.

Under the title of "The Myth of the Aeroplane Bomb," the editorial writer said, for example: "The *Scientific American* has no wish to deprecate the skill shown by Curtiss in successfully dropping incendiary bombs within an area which represented the deck of a battleship, but in the interests of truth and cold logic we feel compelled to give it as our opinion that, so far as the future of naval warfare is concerned, this dexterous feat of the aviator has but little significance."

"It was inevitable, when an art so difficult and seemingly impossible as that of human flight had

once been demonstrated, that the enthusiasm of its votaries would carry them into the fields of wild speculations and prophecy, and that each initial success, however modest, would be taken as proving to a demonstration many a difficult problem, whose practical solution could be arrived at by only the well-beaten road of experiment and accumulated experience . . .

"TO HIT A NAVALSHIP with aeroplane bombs, even if they be let go from the perfected flyer of the future, is a problem most complicated. We do not hesitate in any that to take accurate aim from a safe height, clear of shrapnel fire, would involve such very accurate data and such complicated calculations of height, speed of aeroplane, speed of ship, speed of falling shell, wind velocity, direction of aeroplane, etc., and the shell, if it did strike home, would do such insignificant damage, that to affirm that the aeroplane is going to 'revolutionize' the naval warfare of the future is to be guilty of the wildest exaggeration . . . By what means is the aviator to gather these many data, translate them into a final result, and drop his shell at the one critical instant of time that would insure a hit?

"The problem would be serious were he seated quietly at his desk on shore. By what magic, then, shall he work it out when he is winging it, a thousand or fifteen hundred feet in mid-air, with the roar and scream of the bursting shrapnel about him?"

Quoting these paragraphs of 34 years ago is not intended as ridicule. Nor as an excuse for those who predict "wildly" today. The fewer predictions the better.

Nevertheless, those already in aviation who do not have the imaginative awareness to grasp every possible means of technical improvement must be ready to find themselves tossed aside one of these days. They must make room for others who are willing to work like fury, who admit that nothing is impossible forever in this business, and who have decided the sooner we overcome those "insurmountable" obstacles the better.

Then Washington correspondent had a good point.

Roscoe H. Woods



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